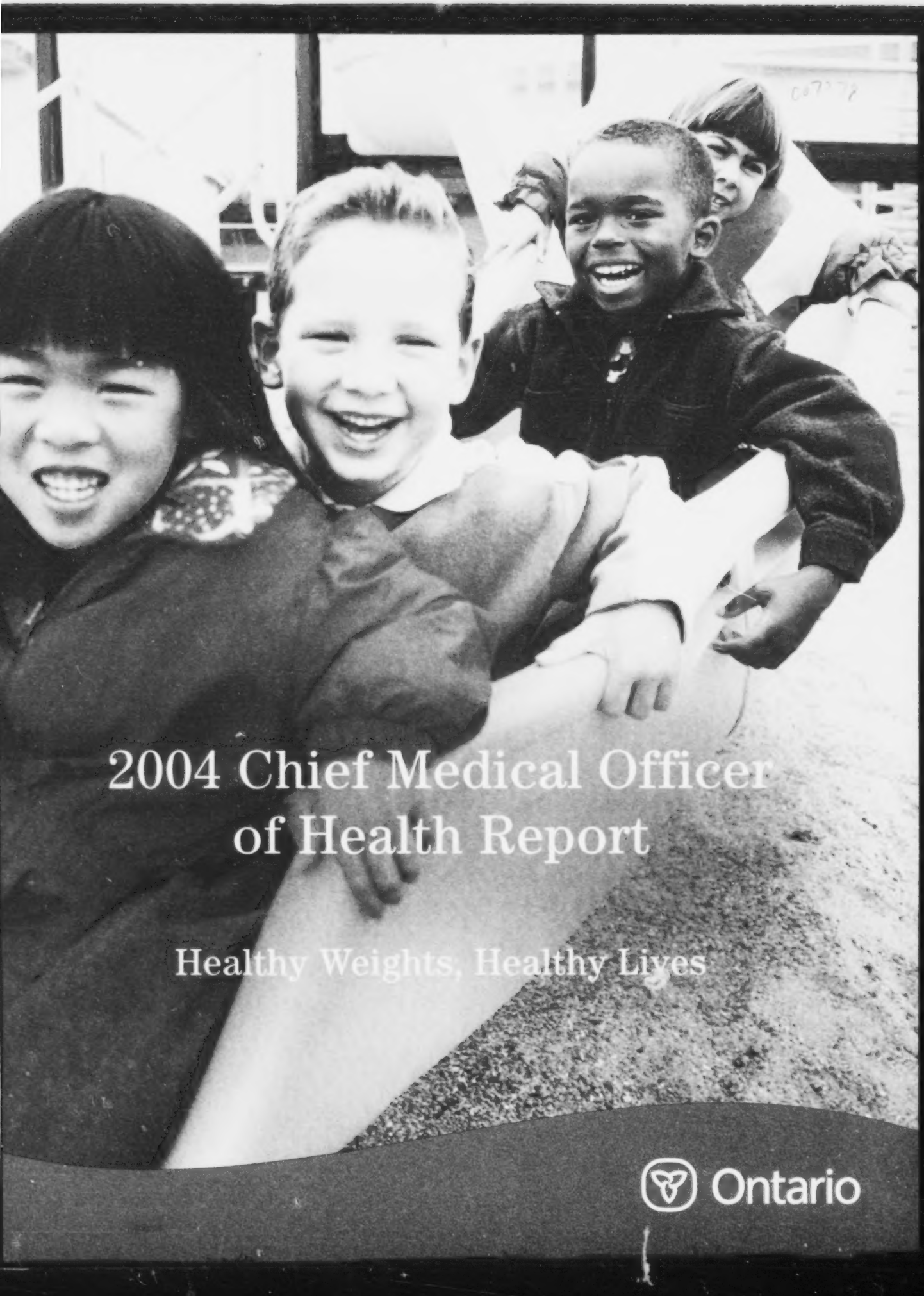

2004 Chief Medical Officer of Health Report

Healthy Weights, Healthy Lives

Ontario

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A Message from Ontario's Chief Medical Officer of Health

An epidemic of overweight and obesity is threatening Ontario's health.

I am alarmed to report that, in 2003, almost one out of every two adults in Ontario was overweight or obese. Between, 1981 and 1996, the number of obese children in Canada between the ages of seven and 13 tripled. This is contributing to a dramatic rise in illnesses such as type 2 diabetes, heart disease, stroke, hypertension and some cancers.

Why this epidemic? In part, it is caused by our genes or our lack of willpower. Yet, in the 21st century, our environments increasingly are responsible for tipping us into overweight and obesity.

We are now living in 'obesogenic' environments, communities, workplaces, schools and homes that actually promote or encourage obesity:

- many young people do not have the opportunity to be physically active every day and are surrounded by ads promoting soft drinks and snack foods
- more adults work in sedentary jobs and drive long distances to work
- 'super-sized' food portions are the norm
- more communities lack sidewalks, park space, bike lanes and recreation programs
- some people do not have enough income to make healthy food choices

As a society we have lost the balance between the energy we take in and the energy we expend, which is key to a healthy weight. Just when Ontarians are faced with more food choices, more processed foods, and larger food portions, we have engineered physical activity out of our lives, replacing it with remote controls, computers and video games.

We have made our generation the most sedentary in history.

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In this report, I set out a plan to promote healthy weights in Ontario. The goal is to help all Ontarians understand the factors that affect their weight and find the right balance between the food they eat (energy in) and how physically active they are (energy out), and to create environments – day care centres, schools, workplaces, recreation centres, communities – that promote physical activity and healthy eating.

The province's health system is committed to reversing the trend to overweight and obesity, but it cannot solve the problem on its own. Because physical, social, cultural and environmental factors have such a strong influence on weight, Ontario needs a broad, multi-sectoral, community-wide response to this epidemic.

I call on all levels of government, the health sector, the food industries, workplaces, schools, families and individuals to become part of a comprehensive province-wide effort to change all the factors that contribute to unhealthy weight. We must act now to create communities that promote healthy eating and regular physical activity.

Healthy weights mean healthy lives.

Dr. Sheela Basrur
Chief Medical Officer of Health and Assistant Deputy Minister

Introduction

Healthy weight is a vital part of a healthy life. People who are a healthy weight feel better, are less likely to develop chronic diseases, and enjoy a better quality of life. On the other hand, an unhealthy weight – being either underweight or overweight or obese – is a serious threat to health and well-being.

According to the World Health Organization (WHO), being overweight due to poor nutrition and lack of physical activity is one of the greatest health challenges and risk factors for chronic disease in the 21st century (WHO, 2002). In the United States, poor diet and physical inactivity may soon overtake tobacco as the leading cause of death (Mokdad et al, 2000). In Canada, the increasing prevalence of obesity is the fastest growing epidemic of our time (DiRuggiero et al, 2004). Ontarians face the same challenges as people in the rest of Canada and in other economically developed countries in maintaining healthy weights: in 2003, almost half the province's adults (i.e., age 18 and older) were overweight or obese.

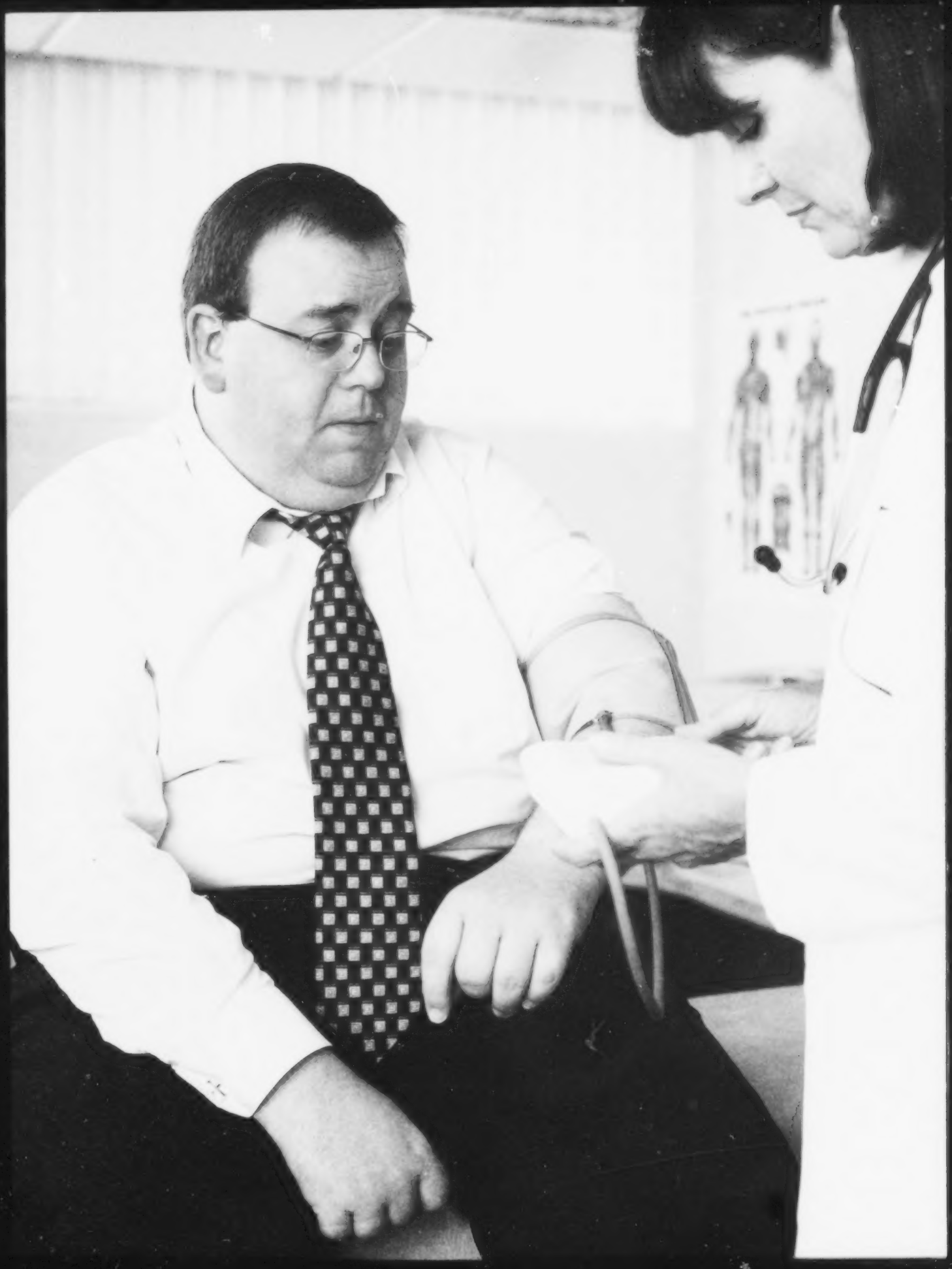
Overweight and obesity are now such a serious public health concern that they are known as "the new tobacco". They are contributing to a dramatic increase in illnesses such as diabetes, heart disease, stroke, hypertension and some cancers. They are also affecting healthcare costs. In 2000/2001, obesity cost Canada's healthcare system an estimated $4.3 billion: $1.6 billion in direct costs, such as hospital care, drugs, and physician services, and $2.7 billion in indirect costs, such as lost earnings due to illnesses[1] and premature deaths associated with obesity (Katzmarzyk et al, 2004).

Rates of overweight and obesity are reaching epidemic proportions in Canada and Ontario, but this serious health situation is potentially reversible. Many of the complex individual, social, cultural, economic and environmental factors fuelling the epidemic can be changed or managed. By acting now, Ontario can reduce the risks associated with unhealthy weights, and reap health benefits for decades to come.

[1] The costs associated with obesity used in this economic analysis were related to the following illnesses: coronary artery disease, stroke, hypertension, colon cancer, post menopausal breast cancer, type 2 diabetes, gall bladder disease, and osteoarthritis.

This report:

- describes the link between weight and health
- defines healthy and unhealthy weights
- analyzes the current situation in Ontario
- describes the complex biological, lifestyle, socio-economic/cultural and environmental factors that determine weight
- examines the steps that government, the health system, the food industry, workplaces, schools, communities, parents and caregivers, and individuals can take to help Ontarians achieve and maintain healthy body weights.



I. The Link Between Weight and Health

There are health risks associated with being either underweight or overweight.

Health Risks of Being Underweight

Underweight people have a higher risk than people who are a healthy weight of developing health problems (Health Canada, 2003) such as:

- undernutrition
- osteoporosis
- infertility
- a decreased ability to fight infections.

Underweight is usually associated with eating disorders[1], such as anorexia nervosa and bulimia, and underlying illnesses, such as cancer.

Health Risks of Being Overweight

Overweight and obese people have a higher risk than people who are a healthy weight of developing a wide range of illnesses and conditions (Health Canada, 2003), including:

- type 2 diabetes
- coronary heart disease and stroke
- hypertension
- osteoarthritis
- some types of cancer (breast, endometrial, colon, prostate and kidney)
- gallbladder disease.

Other health risks that have been linked with overweight and obesity include dyslipidemia[2], insulin resistance[3], obstructive sleep apnea[4], respiratory problems, difficulty performing activities of daily living, impaired fertility, and psychosocial problems.

The risk of type 2 diabetes is strongly associated with being overweight: the prevalence of diabetes increases 5% to 10% in the adult population for every 1 kg increase in body weight (Ford et al, 1997; Resnick et al, 2000). Over the past decade, the number of Ontarians with diabetes has doubled and could reach 1.2 million by 2010. About 706,500 people – 7.5% of the population – have diabetes. Each year, 53,600 people are diagnosed with diabetes, which is a chronic illness.

[1] For a comprehensive description of the health problems associated with underweight, refer to: http://www.psych.org/psych_pract/treatg/pg/Practice%20Guidelines8904/EatingDisorders_2e.pdf

[2] A condition marked by abnormal concentrations of lipids or lipoproteins in the blood.

[3] Reduced sensitivity to insulin by the body's insulin-dependent processes that results in lowered activity of these processes or an increase in insulin production or both. Insulin resistance is typical of type 2 diabetes but can occur before type 2 diabetes is diagnosed.

[4] The recurring interruption of breathing during sleep because of obstruction of the upper airway by weak or malformed pharyngeal tissues.

People who develop diabetes are also at higher risk of developing other health problems, such as high blood pressure, heart disease, stroke, blindness, kidney failure, and circulation problems that can lead to gangrene and amputations.

According to the World Health Organization the health risks associated with being overweight increase as people's weight increases or as they become obese (WHO, 2002). Obese people are three times more likely than people with healthy weights to have abnormal blood lipid levels, type 2 diabetes, gall bladder disease and breathing problems. They are also more likely to develop cancer, and have higher death rates from cancer (Calle et al, 2003). Obese individuals have a higher risk of developing coronary heart disease, high blood pressure, joint problems, low back pain, fertility problems and hormone related problems. They also have a slightly higher risk of experiencing complications from anesthesia.

Did You Know?

For non-smokers, poor nutrition, physical inactivity and overweight are the leading causes of chronic health problems in Ontario today.

Obese people are three times more likely than people with healthy weights to have abnormal blood lipid levels, type 2 diabetes, gall bladder disease and breathing problems.

Overweight people have a 16% greater risk of premature death compared to normal weight people and obese people have a 25% greater risk of early death compared to normal weight people (Katzmarzyk et al, 2004).

In a population based sample, about 60% of obese children five to ten years of age had at least one risk factor for cardiovascular disease – such as elevated total cholesterol, triglycerides, insulin or blood pressure – and 25% had two or more risk factors. (Institute of Medicine, 2004).

Health Risks for Children

Childhood obesity affects growth and development, and contributes to health and psychosocial problems. Because there is a social stigma associated with being obese, young people who are overweight may suffer from self-blame and low self-esteem, which can affect their academic achievement and social development. Obese children also face greater health risks than children with healthy body weights: in a population-based sample, approximately 60% of obese children five to 10 years of age had at least one other risk factor for cardiovascular disease on top of obesity. (Institute of Medicine, 2004).

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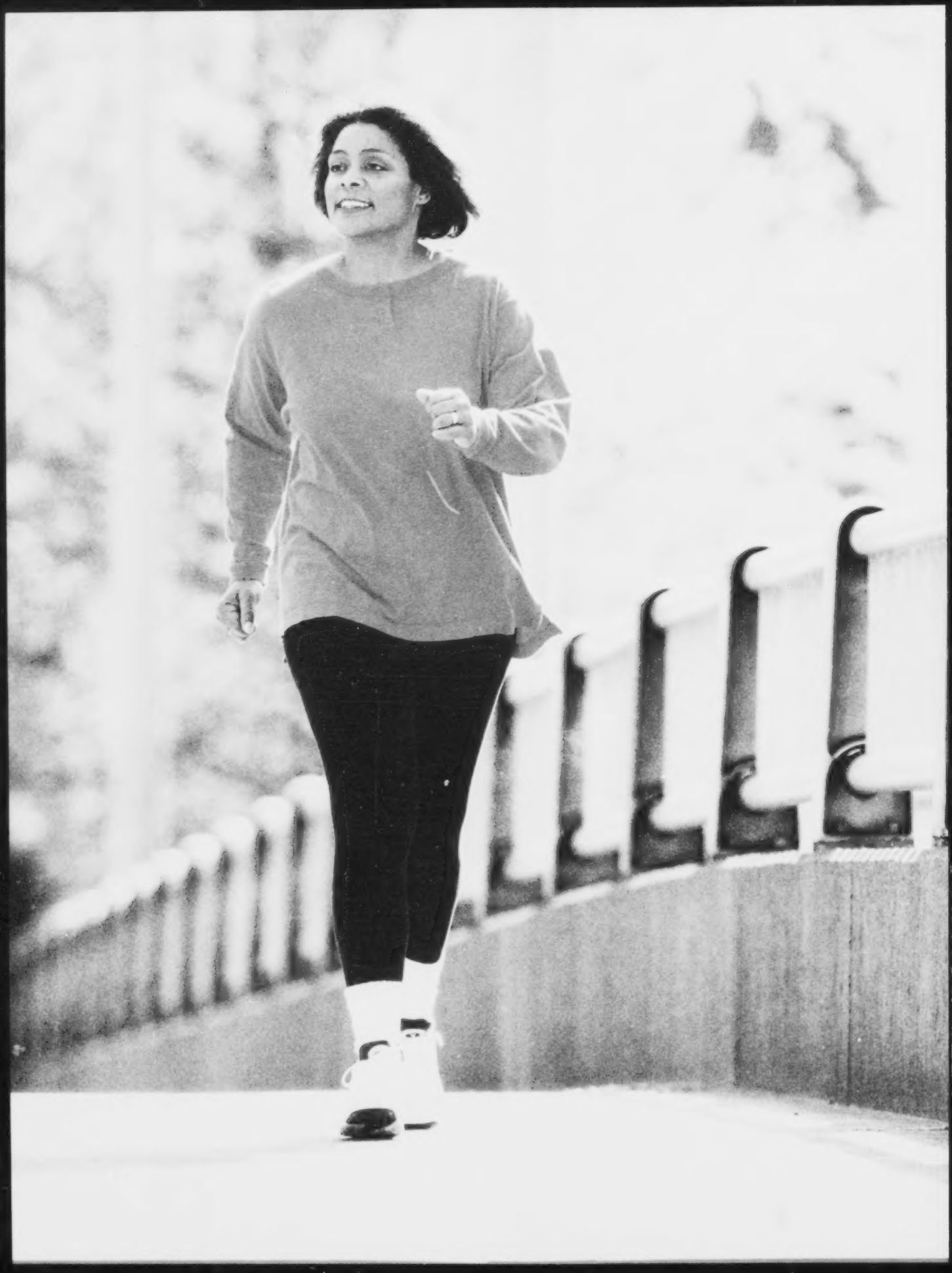


II. What is a Healthy Weight?

A person's weight is determined by the energy they take in (the food they eat) and the energy they put out (how active they are).

Energy is measured in calories. The body requires a minimum number of calories just to sustain life (i.e., to breathe and pump blood). As people age, they need fewer calories or less food to sustain life. The body also requires enough calories to digest food and to support the basic tasks of living, such as dressing, eating, and bathing as well as any physical activity or movement, such as walking, climbing stairs, exercising, or participating in sports. When people consistently take in more food energy than they burn each day, they will gain weight. Taking in an excess of just 50 calories a day leads to a weight gain of 2.25 kg per year (Strauss, 2002). Similarly, when people consistently eat fewer calories each day than they burn, they lose weight.

One way to think of weight is to imagine filling a bucket of water. Calories from food and drink are like water pouring into the bucket, and energy used in a day is the amount of water pouring out of the bucket. When the amount of energy leaving the bucket is consistently greater than the amount coming in, the bucket becomes less and less full, and the person loses weight. When the amount coming in exceeds the amount used, the bucket fills up and overflows, and the person will eventually need a larger bucket – or larger clothes – to hold the excess water or energy, which is stored as fat.

When people are a healthy weight, they have achieved the right balance between "energy in" and "energy out".

Defining Healthy Weights for Adults

What is the right balance between "energy in" and "energy out"? To help adults assess whether they are a healthy weight, Health Canada uses an international body weight classification system that takes into account two key health-related risk factors: how much people weigh for their height and where they carry their excess fat.

The classification system is based on a combination of:
- body weight, as measured by the body mass index (BMI)
- abdominal fat, as measured by waist circumference (WC).

About Body Mass Index

BMI is the most practical indicator of weight-related health risk currently available for adults age 18 and older. It is calculated using a person's height and weight as follows:

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2\text{(m)}} \quad \text{OR} \quad \frac{\text{weight (lbs)} \times 703}{\text{height}^2\text{ (in.)}}$$

Table 1 shows the ranges of BMI associated with being underweight, a healthy weight, overweight and obese. The BMI categories are an internationally accepted classification system. (See Appendix A for a chart that can be used to calculate BMI quickly.[6])

Table 1: Health Risk Classification According to Body Mass Index (BMI)
For use with adults age 18 and older. Not for use with pregnant or breastfeeding women.

BMI Category [weight(kg)/height(m)^2]	Classification	Risk of developing health problems
<18.5	Underweight	Increased risk
18.5 – 24.9	Normal weight	Least risk
25.0 – 29.9	Overweight	Increased risk
30 and over	Obese	
30.0 – 34.9	Class I	High risk
35.0 – 39.9	Class II	Very high risk
≥40.0	Class III	Extremely high risk

Note: For persons 65 and older the 'normal' range may begin slightly above BMI 18.5 and extend into the 'overweight' range.
Source: *Canadian Guidelines for Body Weight Classification in Adults*, Health Canada 2003.

[6] Health Canada's website includes a BMI calculator: enter height and weight, and BMI is calculated automatically. http://www.hc-sc.gc.ca/hpfb-dgpsa/onpp-bppn/bmi_chart_java_e.html

Limitations and Benefits of Using BMI

There are certain limitations to using BMI to estimate adults' health risk. For example:

- BMI classification does not apply to pregnant or breastfeeding women
- BMI may overestimate the health risks for young adults who have not reached full growth and for adults who are very lean, muscular, or physically fit because muscle weighs more than fat
- BMI does not take bone density into account
- BMI may not accurately assess the health risks for seniors and members of certain ethnic and racial groups
- BMI measures body weight at one point in time, and may not capture the risk for people whose weight has changed (a sudden increase or decrease in weight may be a signal of additional health problems)

Despite these limitations, the BMI classification system is a practical tool for:

- comparing body weight patterns, within and between populations
- identifying populations and individuals at higher risk of weight-related morbidity and mortality
- identifying priorities for both population-based and individual interventions
- evaluating the impact of interventions.

Source: *Canadian Guidelines for Body Weight Classification in Adults*, Health Canada 2003.

About Waist Circumference

Waist circumference (WC) is a practical indicator of the health risk associated with excess abdominal fat. In general, men with a WC of 102 cm (40 inches) or larger and women with a WC of 88 cm (35 inches) or larger are at higher risk of developing health problems, such as type 2 diabetes, heart disease and hypertension. Like BMI, WC should not be used with people under age 18 or with pregnant or breastfeeding women.

The risk of developing health conditions associated with overweight and obesity is greater for people who are apple-shaped or carry most of their excess fat around the abdomen (central obesity) than it is for people who are pear-shaped or carry their excess fat around the hips and thighs (peripheral obesity).

Figure 1: Measuring Waist Circumference
When measuring waist circumference, it's important to measure at a person's actual waist as shown, not below the person's belly – even if that's where people who are apple shaped usually wear their pants. If waist circumference is incorrectly measured, it could underestimate the risk.

The Body Weight Classification System

Table 2 illustrates the risks associated with body weight (BMI) combined with abdominal fat (WC). It is clear from this table that people who have a high BMI and who carry most of their excess weight around their abdomen are at high risk for health problems.

Table 2: Health risk[1] classification according to Body Mass Index (BMI) and Waist Circumference (WC)

		Body Mass Index (BMI)		
		Normal Weight (18.5 – 24.9)	Overweight (25.0 – 29.9)	Obese Class I (30.0 – 34.9)
Waist Circumference (WC)	<102 cm (males) <88 cm (females)	Least risk	Increased Risk	High Risk
	≥102 cm (males) ≥88 cm (females)	Increased Risk	High Risk	Very High Risk

[1] Risk is relative to BMI and WC <102 cm for males and < 88 cm for females
Source: *Canadian Guidelines for Body Weight Classification in Adults*, Health Canada 2003.

When trying to determine whether a person has a healthy or unhealthy weight, healthcare providers should not rely on BMI alone. This is because muscle weighs more than fat, which means that a fit person can have the same BMI as someone who is overweight. Focusing only on BMI does not provide an accurate assessment of risk. Instead, healthcare providers should consider BMI and WC along with other information gathered during a comprehensive health assessment.

Defining Healthy Weights for Children and Adolescents

Two different methods are used to assess healthy weights in children and adolescents:

- the international standard (Cole et al, 2000), which is based on an international reference population and extrapolates a child's BMI to match adult categories for being overweight and obese
- the use of BMI-for-age growth charts released by the US Centers for Disease Control and Prevention (CDC), which are based on US population data (see Appendix B for CDC Growth Charts).

When these two methods are used to analyze the same data, they yield different population prevalence estimates for overweight and obesity in children. (See Appendix C for a more in-depth comparison of the two methods.)

The Dietitians of Canada, Canadian Paediatric Society, The College of Family Physicians of Canada, and the Community Health Nurses Association of Canada released a collaborative statement endorsing the use of the US CDC BMI-for-Age charts for clinical and community use (Collaborative Statement, 2004). The growth charts (see Appendix B) provide the body mass index-for-age percentiles for boys and girls from age two to 20. As Table 3 indicates, children whose BMI falls within certain percentiles are considered underweight, a healthy weight, overweight or obese.

Table 3: Age-gender specific (AGS) BMI & BMI categories for children and adolescents[7]

BMI Category	Definition
Underweight	AGS-BMI < 5th percentile Or body weight ≤ 89% of ideal body weight Or weight-for-length/stature < 3rd percentile
Healthy Weight	AGS-BMI ≥ 5th percentile & AGS-BMI < 85th percentile
Overweight	AGS-BMI ≥ 85th percentile & AGS-BMI < 95th percentile
Obesity	AGS-BMI ≥ 95th percentile

Source: *Collaborative Statement, 2004*

Growth spurts during childhood will affect children's body fat, so weight issues in children and youth must be managed carefully. It is important for healthcare providers to monitor a child's growth, development and body weight changes. The BMI-for-age growth charts[8] provide a practical way of tracking changes in a child's BMI over time. It is also important for parents and healthcare providers to be extremely sensitive when discussing body weight with children to avoid damaging their self-esteem or triggering eating disorders.

Approaches to Achieving and Maintaining Healthy Weights

Both adults and children who are overweight or obese often struggle to find an effective approach to help them achieve and maintain healthy weights. According to a recent national survey, one in three Canadians are trying to lose weight (Joint Initiative, 2004).

Healthy Weights by Unhealthy Means

Although a healthy weight is a function of both "energy in" and "energy out", many people who are trying to achieve a healthy weight focus only on one part of the equation – energy in. A quick scan of magazine covers at a grocery checkout reveals a range of crash or fad diets. A focus on dieting and an ideal body shape can mean that people are trying to achieve a healthy weight, but by unhealthy means. This can lead to yo-yo dieting, weight cycling, restrictive eating, obsessive exercising, and a negative perception of body image. Dieting and extreme calorie restriction can leave people lacking in vitamins and minerals, and without enough energy to be physically active. A sudden drop in calorie intake can also lead to a slower metabolic rate, which makes it more difficult for people to lose weight.

For most people, the pursuit of the "ideal" size and shape fails over the long term: people usually regain one- to two-thirds of weight lost through fad diets within one year and almost all of the weight lost within five years (Health Canada, 2000).

[7] Note: US Centers for Disease Control and Prevention (CDC) categories are not labelled the same as those recommended by Canadian Collaborative Statement. Above 95% in Canada is "obese", but in the CDC terms, it is "overweight". The table has been adjusted to reflect the 2004 Collaborative Statement for Canada.

[8] See http://www.cdc.gov/nchs/about/major/nhanes/growthcharts/charts.htm

Did You Know?
Excess weight does not appear overnight; it accumulates over months and years. Like weight gain, reaching and maintaining a healthy weight also takes time. For both adults and children, it should be an ongoing process of improving eating habits, increasing physical activity, and developing a healthy lifestyle and a healthy weight for a lifetime.

A Healthy Weight Approach

A healthy weight approach to achieving and maintaining healthy weights focuses on balancing the relationship between "energy in" and "energy out". It promotes healthy eating (as opposed to dieting) and regular physical activity. It also tries to build self-esteem and reduce the social pressure that encourages people to strive for extreme body shapes. A healthy weight approach promotes physical, social and psychological well-being.

Making Sense of Calories

To achieve and maintain a healthy weight, people need to consume enough calories each day to allow them to live, breathe, work and be physically active. How many calories should people eat each day? What are the best sources for those calories?

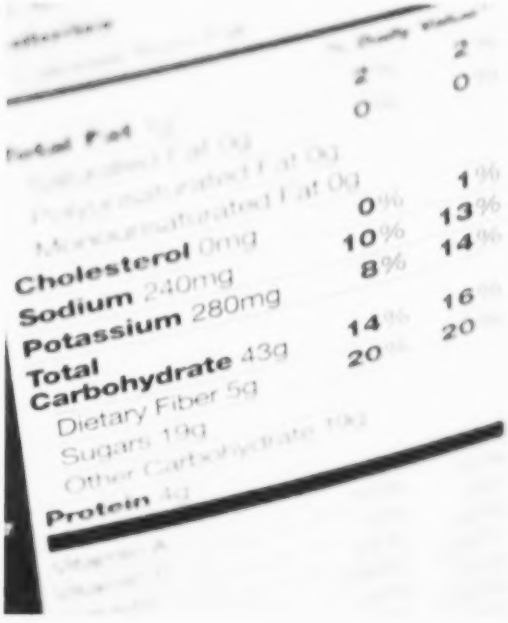
Calories come from the macronutrients (carbohydrates, fats and proteins) in food and beverages, including alcohol. Each type of macronutrient provides a fixed number of calories per gram. Table 4 lists the caloric density or number of calories per gram for macronutrients and alcohol.

Table 4: Number of Calories per Gram of Macronutrients and Alcohol

Macronutrients and Alcohol	Calories per gram
Carbohydrate	4
Fat	9
Protein	4.3
Alcohol	7

Although there has been much discussion about the relative proportion of carbohydrates, fat and protein people should have in their diets and the foods that provide these macronutrients, it is the total number of calories consumed – regardless of the source – that affect weight (US Food and Drug Administration Centre for Safety and Applied Nutrition, 2004). Calories do count.

Did You Know?
Canadians will soon have better nutrition information to help them compare the calorie content of food products and make healthier choices. Changes in Canada's food labelling regulations will require all packaged foods to be labelled. The new 'Nutrition Facts' label will have a standard format, so consumers will know what information to expect and where to find it.



A Guide to Healthy Food Choices

Proteins are the building blocks for muscle and many other parts of the body, but the amount of protein people need each day is quite modest: 0.85 g/kg of body weight for adults. Protein comes from many sources, including meat and alternates (e.g., poultry, fish, beans, legumes) and dairy products. There are advantages to eating more protein from vegetable sources because they may reduce serum cholesterol and the risk of high blood pressure and heart disease.

Fats provide essential fatty acids for tissue and brain development. However, certain types of fat – such as saturated fats and trans fats – increase cholesterol levels and the risk of high blood pressure and heart disease. Saturated fats are found in high-fat meat and dairy products, such as butter, cream, ice cream, cheese and processed meats. Trans fatty acids (created during processing of vegetable oil) are found in crackers, cookies, fast food, and hard margarines. (They are often listed as "vegetable oil shortening" or "hydrogenated vegetable oil" on food labels). It is recommended that, Canadians should try to minimize their intake of saturated and trans fats. Although meat and dairy products contain saturated fat, they are important sources of essential nutrients, so it is important to choose low fat options, such as low fat cheeses and milk products, and lean meats.

Carbohydrates are an important source of energy and dietary fibre. Dietary fibre helps keep bowels regular and may reduce the risk of diverticular disease and colon cancers. The dietary fibre found in certain cereals (such as oats, barley), some beans, and in vegetables (such as eggplant and okra), also lowers serum cholesterol and may reduce the risk of heart disease. To increase their intake of dietary fibre, people should eat more whole grain products, fruits and vegetables, and beans, peas and legumes.

Essential nutrients are vitamins and minerals that our bodies need to function. Vegetables and fruits, especially dark green and orange coloured, as well as whole grains, milk products and alternatives, and meat and alternatives are excellent sources of essential nutrients. By eating a variety of foods from each of the food groups each day, most people can obtain the essential nutrients they need. Some people, such as pregnant women, should take vitamin supplements to meet their nutrient requirements.

Understanding Regular Physical Activity

To achieve and maintain a healthy weight, people have to be physically active enough each day to achieve the balance between energy in and energy out. How much physical activity is enough? What types of activities are best?

Canada's Physical Activity Guide to Healthy Active Living (Health Canada, 1998) recommends that adults participate in 30 to 60 minutes of physical activity daily to maintain or improve their health. The time needed to be active depends on the amount of effort being expended: that is, the more vigorous the activity, the less time is required (see box on next page). The 30 to 60 minutes a day can also consist of several different activities of at least 10 minutes each.

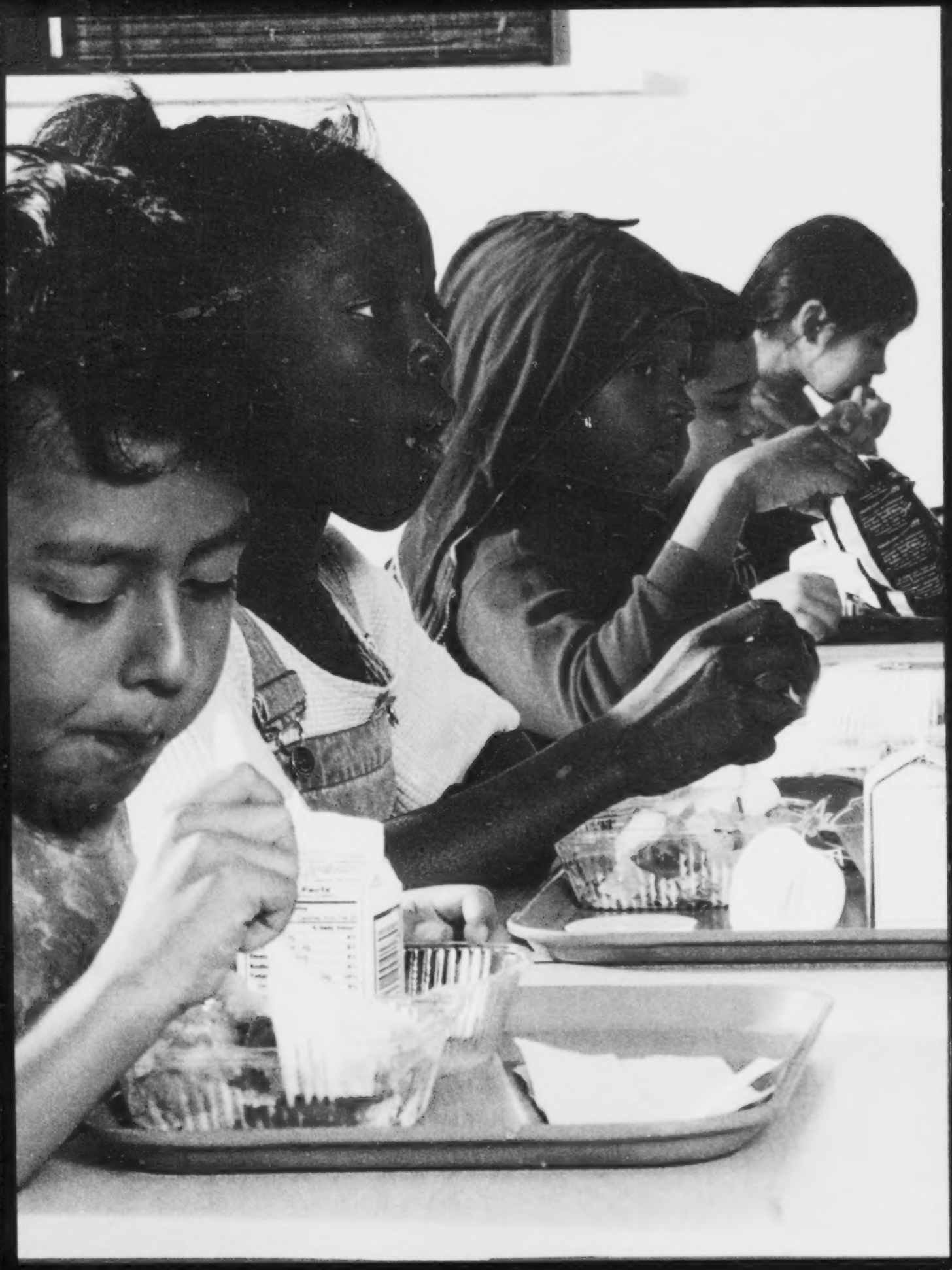
When choosing physical activities, people should include a variety of activities that help build:

- endurance, such as walking or cycling
- strength, such as weight training or heavy yard work
- flexibility, such as yoga or vacuuming.

Physical activity doesn't necessarily mean participating in an organized activity. People can build more movement and physical activity into their daily lives by making small changes, such as taking the stairs, parking in the furthest spot in a parking lot, walking or cycling to do errands, walking to the corner store to get the newspaper, or walking to school or work.

Examples of Various Physical Activities	
Light Effort **60 minutes**	• Light walking • Slow dancing • Bowling • Easy gardening • Volleyball
Moderate Effort **30 to 60 minutes**	• Brisk walking • Cycling • Raking leaves • Swimming • Dancing • Water aerobics • Hiking • Skating
Vigorous Effort **20 to 30 minutes**	• Aerobics • Jogging • Hockey • Basketball • Fast swimming • Fast dancing • Soccer

Source: *Canada's Physical Activity Guide to Healthy Active Living*, Health Canada, 1998.



III. Are Ontarians a Healthy Weight?

A significant proportion of people in Ontario are not a healthy weight.

About 3% of Adults in Ontario are Underweight

A relatively small proportion – mostly women – struggle with problems related to underweight. About 3% of young women in Ontario have one of the three main eating disorders: anorexia nervosa, binge-eating disorder, or bulimia nervosa (Becker and Hamburg, 1996). About one in four adolescent females in Ontario (13 to 18 year olds) has engaged in at least one activity associated with an eating disorder (Jones et al, 2001), such as vomiting and laxative abuse. In addition, a significant number of children between the ages of ten and 14 – male and female – are trying to lose weight or build muscle, despite being a healthy weight (McVey et al, 2002; McVey et al, 2004a; McVey et al, 2004b).

Underweight is also a problem for Ontario's elderly, many of whom either have difficulty accessing healthy food or have an underlying condition, such as cancer, that causes them to lose weight.

About Eating Disorders

Anorexia nervosa is a psychiatric condition characterized by low body weight (< 85 percent of expected weight), intense fear of weight gain, and an inaccurate perception of body weight or shape (Diagnostic and Statistical Manual of Mental Disorders [DSM]-IV). The mean age of onset is 17 years (DSM-IV).

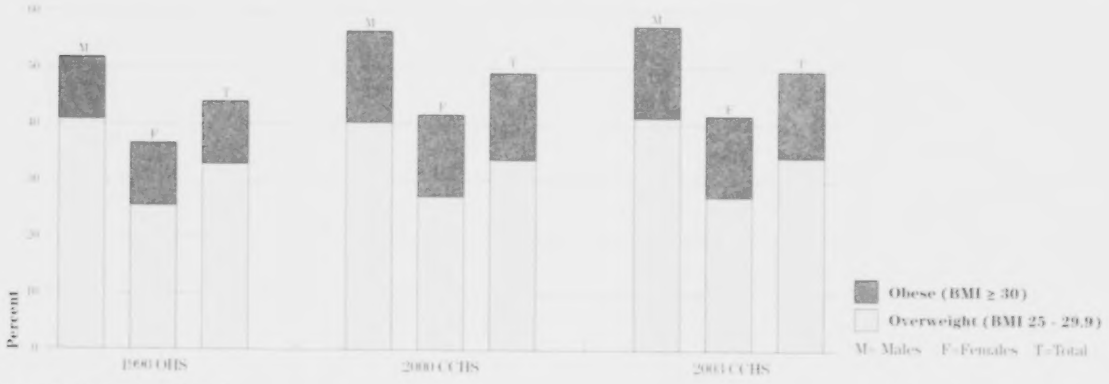
Binge-eating disorder is a newly recognized condition characterized by episodic uncontrolled eating, without compensatory activities such as vomiting or laxative abuse to avert weight gain (Devlin et al, 2003).

Bulimia is a psychiatric condition marked by both binge eating and compensatory activities.

Almost 50% of Adults in Ontario are Overweight or Obese

In 2003, almost half of Ontario adults (18 years and older) were overweight or obese. Men were more likely to be overweight or obese than women. About 57% of Ontario men and 42% of Ontario women were overweight or obese based on 2003 data. The proportion of the population that was overweight or obese increased gradually from 44% in 1990 to 49% in 2000, and appears to have remained stable in 2003 at 49%, as in Figure 2.

Figure 2: Overweight and Obesity Trends in Ontario Adults Aged 18 and Over 1990, 2000 and 2003



Note: Unknowns excluded.

As Table 5 indicates, the tendency to be overweight and obese increases with age up to age 64: among Ontario adults ages 35 to 49, over 50% are considered overweight or obese, compared to over 60% of adults ages 50 to 64. As noted earlier, BMI should be used with caution for those over 65.

Although these data show a dramatic tendency to unhealthy weights in Ontario, they may actually understate the true extent of the problem. The data used for Figure 2 and Table 5 were based on self reports, and people tend to over-report their height and under-report their weight. The actual number of Ontario adults who are overweight or obese may actually be much higher.

Did You Know?

- In Canada, in 2000, overweight and obesity rates are generally higher for men than women (56% and 39%, respectively).
- For men, the rates of overweight and obesity increase with income, but for women the opposite trend occurs. Women with higher incomes are less likely to be overweight or obese than women with low incomes.
- The rates of obesity among Aboriginal people are nearly twice the overall rate for Canadian adults, and this is accompanied by high rates of type 2 diabetes in Aboriginal communities in Canada.

Source: *Canadian Population Health Initiative, 2004.*

Table 5: Percentage of Ontario Adults Age 18 and Over by BMI Category
CCHS 2000 (weighted percentages)

BMI Category	Age 18 - 34	Age 35 - 49	Age 50 - 64	Age 65 & over	Total (Age 18 & over)
	sample size = 8,673	sample size = 10,596	sample size = 7,395	sample size = 7,353	sample size = 34,017
Underweight (BMI<18.5)	4.9	2.5	1.0	3.3	3.1
Normal weight (BMI 18.5-24.9)	58.6	46.2	37.8	44.6	48.0
Overweight (BMI 25.0-29.9)	25.8	35.0	40.4	37.4	33.7
Obese (BMI ≥ 30.0)	10.7	16.3	20.8	14.6	15.3

Source: *Canadian Community Health Survey (CCHS) 2000.* Data prepared by Public Health Division, Ministry of Health and Long-Term Care, Toronto.
Note: All data are adjusted by excluding unknowns.

Overweight and Obesity Varies Across the Province

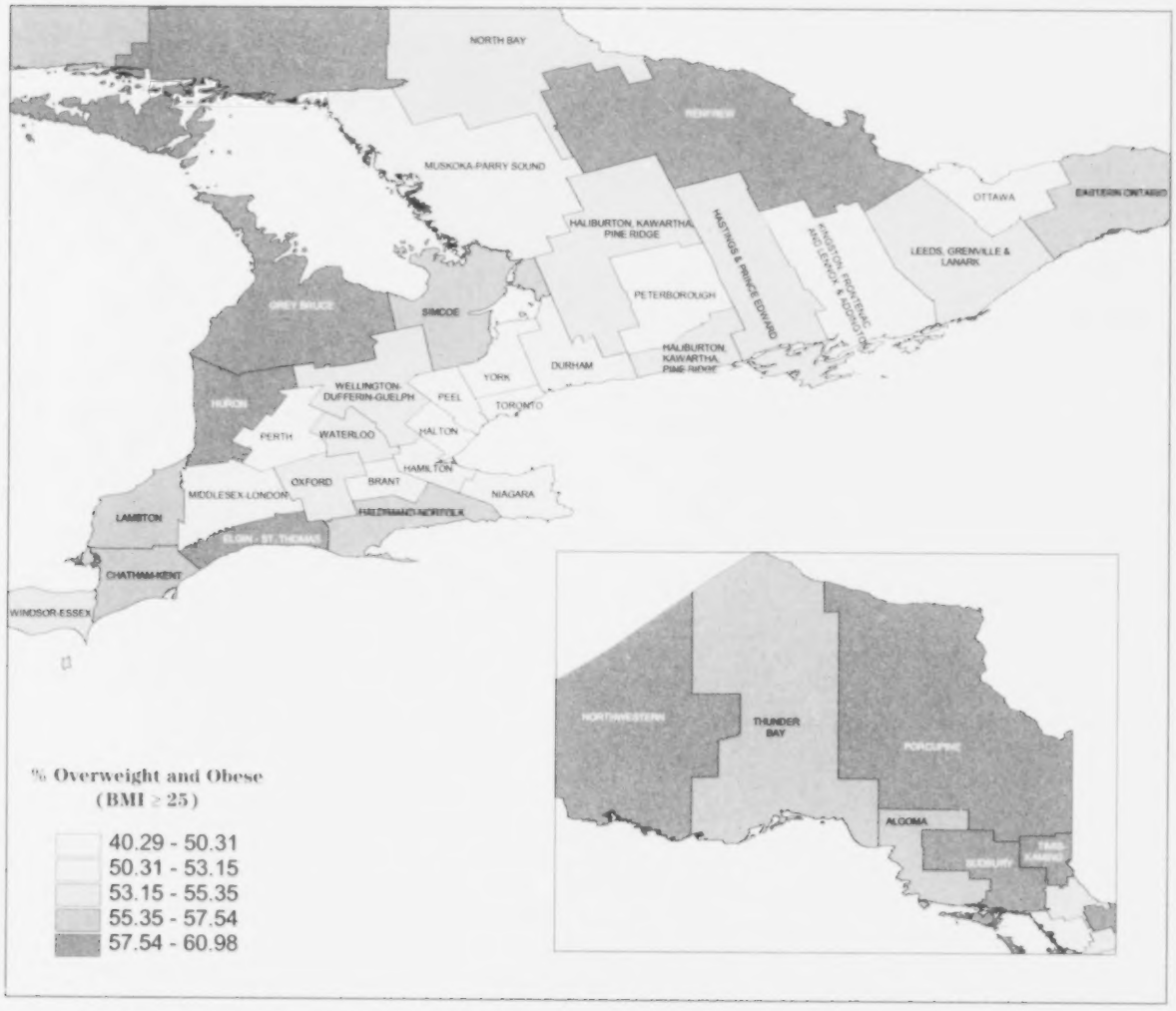
There are regional differences in weight in Ontario as shown in Figure 3. The highest rates of overweight and obesity combined are found in the following health unit areas: Huron County (61.0%), Northwestern (60.1%), Porcupine (59.3%), Sudbury and District (58.7%) and Grey Bruce (58.6%). Health unit areas with the lowest rates of overweight and obesity combined are: Toronto, York Region, Peel Region, Kingston, Frontenac and Lennox & Addington, Halton Region, Ottawa, Peterborough and Perth District.

These regional differences may be due to a number of factors, including income levels and the distances people have to travel to work, shop or take part in physical activities. For example, most of the health unit areas with lower rates of overweight and obesity have large urban centres, where people may have more access to healthy food and opportunities to be active. Obesity rates may be higher in more rural and remote areas, like Northern Ontario, because people may rely more on their cars to travel large distances and because the cost of healthy foods may be higher in some communities. The regional differences may also be due to the ethnic diversity in areas such as Toronto, because some ethnic groups, such as Asians and South Asians, have a lower population level BMI than people from other cultures (Toronto Public Health, 2004). More research is required to determine the reasons for these regional differences.

Between 15% and 25% of Ontario Youth are Overweight or Obese

According to data collected in 2000, about 25% of boys and 15% of girls (ages 12 to 18) in Ontario were above a healthy weight. The proportion of children who are overweight or obese remained relatively stable throughout the 1990s, as shown in Table 6.

Figure 3: Distribution of Overweight and Obesity Among Ontario Adults Age 20-64 by Health Unit



Data Source: *Canadian Community Health Survey (CCHS) 2000, Ages 20-64*

Table 6: Percentage of Ontario population 12-18 years of age by body weight category, 1990 and 2000

		Percent (%) of Ontario population 12-18 years of age by body weight category	
	Body Weight Category*	OHS 1990 (Sample size =6,065)	CCHS 2000 (Sample size =4,305)
Male	Under/Normal Weight	76.3	75.7
	Overweight	19.3	19.1
	Obese	4.2	5.2
Female	Under/Normal Weight	85.8	85.6
	Overweight	10.8	11.1
	Obese	3.4	3.3

Source: *Ontario Health Survey (OHS) 1990; Canadian Community Health Survey (CCHS) 2000.* Data prepared by Public Health Division, Ministry of Health and Long-Term Care, Toronto.
* Body weight category based on International Standards (Cole et al, 2000)

It is difficult to estimate the extent of overweight and obesity in children and youth because of lack of data. The information that is available is self reported or reported by parents and, therefore, may underestimate the extent of the problem.

Childhood Overweight and Obesity is Increasing in Canada

Published data on the rates of overweight and obesity in children are limited, and the information that is available is not based on measured heights and weights. Two different methods were used to analyze 1981 and 1996 data (Katzmarzyk, 2001; Tremblay and Willms, 2000, 2001).* Although the two methods yielded different estimates for the prevalence of overweight and obesity, the overall trend was consistent: between 1981 and 1996, there were dramatic increases in overweight and obesity in children ages seven to 13. During this time period, obesity in that age group tripled, as shown in Figure 4.

* One method used to define overweight and obesity among Canadian children used the 85th and 95th percentile cut points of Canadian data collected in 1981; the other method uses international cut points based on an international reference population.

Figure 3: Distribution of Overweight and Obesity Among Ontario Adults Age 20-64 by Health Unit

Data Source: Canadian Community Health Survey (CCHS) 2003, Ages 20-64

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Childhood overweight and obesity is increasing rapidly

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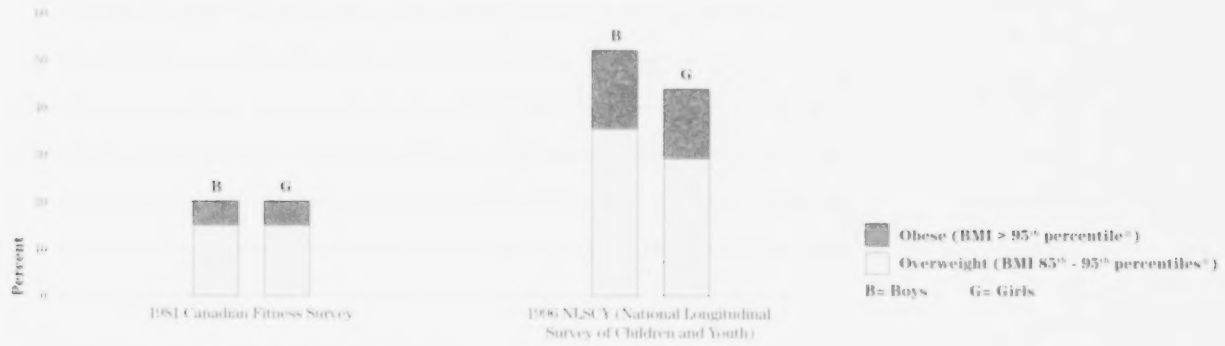
One method used to define overweight and obesity among Canadian children used the 85th and 95th percentile cut points of Canadian data collected in 1981; the other method uses international cut points based on an international reference population.

Figure 4: Overweight and Obesity Trends in Canadian Children Aged 7 to 13, 1981 and 1996



* Percentiles based on 1981 Canadian Fitness Survey.
Source: *Tremblay MS and Willms JD, 2000, 2001.*

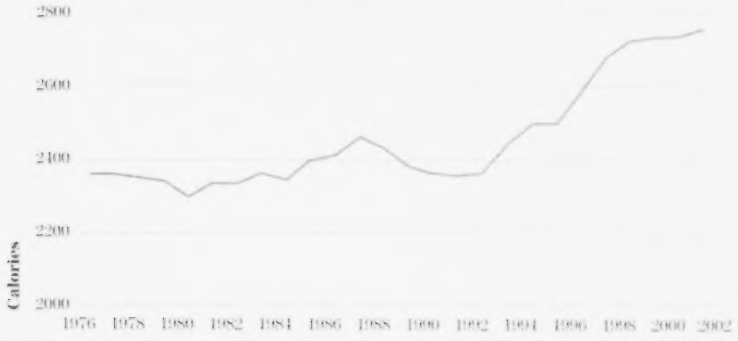
Focusing on the Problem of Overweight and Obesity

Although there are serious health risks associated with being underweight, the problem of overweight affects such a large proportion of Ontario's population – adults and children – and the burden of illness is so great, that the rest of this report will focus on overweight and obesity. Eating habits and food consumption patterns, activity levels, the factors that contribute to overweight and obesity, and healthy weight strategies that can be used to help people achieve and maintain healthy weights will be discussed in the remainder of this report.

"Energy In" – What Are Ontarians Eating?

According to Statistics Canada Food Consumption Highlights, the total calories consumed by Canadians – which had been relatively stable between 1971 and 1991 – increased 17% between 1991 and 2001 (Statistics Canada, 2003), as shown in Figure 5.

Figure 5: Apparent per Capita Calorie Consumption in Canada (1976-2001)



Source: *Statistics Canada, Canada Food Stats 2003.*

More Cream, More Fat

Between 1991 and 2001, Ontarians consumed 9% less milk, and 23% more cream, which may reflect higher consumption of prepared coffee drinks. Over that same time period, Ontarians' consumption of oils and fats rose 41% likely due to people eating more high fat salad dressings, fried foods and commercially prepared foods (Statistics Canada, 2004).

More Soft Drinks, More Snacks

Greater risk of obesity in children is associated with higher consumption of sugar-sweetened soft drinks (Ludwig et al, 2001), which provide excessive calories and large amounts of rapidly absorbable sugars. According to food consumption data, in 2002, each person in Canada drank 100 litres of soft drinks, compared to 56 litres per capita in 1976. (Canadian Population Health Initiative, 2004). In 1998, a report on the health of Canadian youth found that 21 to 28% of youth in grades 6, 8, and 10 ate candy or chocolate bars every day, and about 22% of boys and 15% of girls in grade 6 ate potato chips every day (King et al, 1999).

Limitations of Nutrition and Physical Activity Data

The information currently available on Canadians' and Ontarians' eating habits and activity levels is quite limited. Gathering accurate information about what Ontarians eat and their activity level is technically challenging and very expensive. The simplest method involves recall questionnaires and dietary surveys where people are asked to remember what they ate and how active they were. These data can be useful but almost always underestimate food intake and overestimate physical activity due to poor recall (of food portion size or duration of physical activity) and social desirability (individuals tend to present themselves in an overly positive light).

Food consumption data – a crude measure of per capita consumption based on how much food is sold in Canada – doesn't take into account the amount of household waste or the differences between individuals.

Self-reported physical activity surveys tend to overestimate both the intensity and duration and even the frequency of physical activity.

Direct observation of people's activities is extremely time consuming and expensive and may change the type, duration, and intensity of the activities people do just because someone is watching.

More intensive efforts to measure people's eating habits and activity are needed to support health policy and program planning, health message design, and to measure progress in improving population health.

"Energy Out" – How Active are Ontarians?

Table 7 summarizes information from the 1990 Ontario Health Survey (OHS) and the 2000 Canadian Community Health Survey (CCHS), ranking Ontarians by a physical activity (PA) index in one of three categories: active, moderately active and inactive.

Table 7: Percentage of Ontario Adults 18 to 64 Years of Age by Physical Activity (PA) Index, 1990 and 2000

OHS 1990	Percent Ontario Adults, Age 18 - 64		
PA Index	**Male**	**Female**	**Total**
Active[a]	16.5	8.8	12.6
Moderately Active[b]	18.4	14.5	16.5
Inactive[c]	65.0	76.7	70.9

CCHS 2000	Percent Ontario Adults, Age 18 - 64		
PA Index	**Male**	**Female**	**Total**
Active	24.1	18.8	21.4
Moderately Active	23.4	23.5	23.4
Inactive	52.5	57.7	55.2

Source: *Ontario Health Survey (OHS) 1990 and Canadian Community Health Survey (CCHS) 2000.* Data prepared by Public Health Division, Ministry of Health and Long-Term Care, Toronto.
Note: All data are adjusted by excluding unknowns

[a] *Active* = Energy expenditure ≥3 METs[10] (equivalent to walking a total of one hour per day or jogging 20 minutes per day)
[b] *Moderately active* = 1.5 to 2.9 METs (equivalent to walking a total of one half hour per day)
[c] *Inactive* = <1.5 METs (equivalent of walking less than one half hour per day)
All provinces and territories (Sport & Recreation Ministries) have adopted this index.

The good news is more people – both men and women – are engaging in physical activity. The proportion of Ontario adults who are considered active enough to achieve health benefits (i.e., active and moderately active) has increased from 29% in 1990 to 45% in 2000. By 2003, about 48% of adults were active enough to achieve health benefits. Despite this progress, over half of Ontarians do so little that they are classified as "inactive" – so there is still more work to be done.

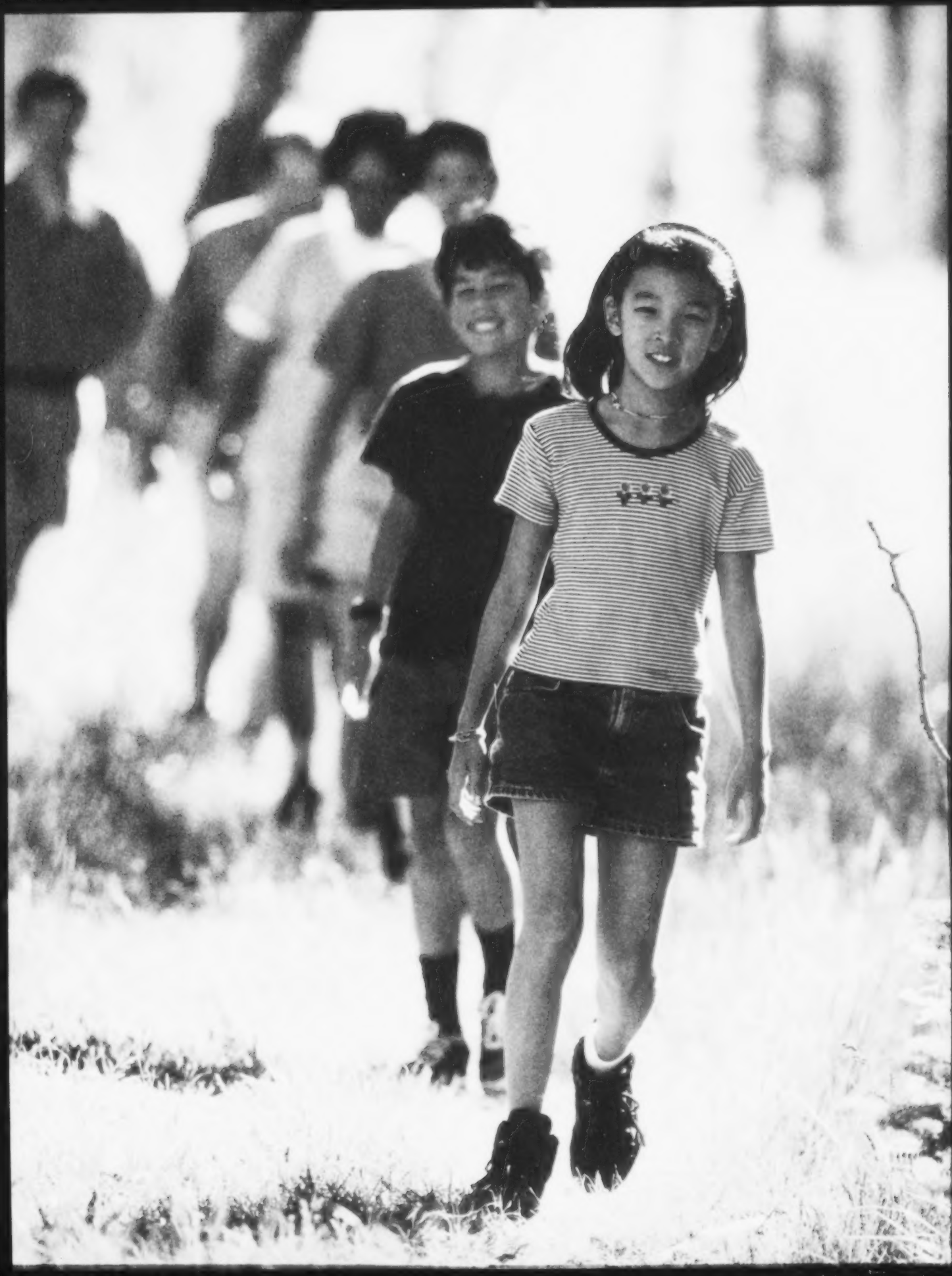
Encouraging Ontarians who are inactive to be moderately active or active will help reduce their risk of developing a number of chronic diseases, and achieve and maintain healthy body weights. It will also contribute to the national physical activity target which is to increase by 10 percentage points the number of Canadians age 20 and older who engage in a level of leisure-time physical activity equivalent to a minimum of 30 minutes a day of moderate to vigorous intensity walking.

[10] Metabolic Equivalents (METs) provide an estimate of the level of intensity of exercise/physical activity: 1 MET = the oxygen uptake when a person is at rest; 2 METs = the oxygen uptake when a person is walking on a level surface less than 2 miles per hour; 5 METs = the oxygen uptake when a person is walking at 4 miles per hour (mph); 8 METs = the oxygen uptake when a person is jogging at 6 mph.

How Active Are Ontario's Children and Youth?

A number of recent surveys have measured physical activity levels among children and youth, and most have observed similar trends. According to the 2000 Canadian Community Health Survey (CFLRI, 2002), 56% of youth ages 12 to 19 were not active enough for optimal growth and development: that is, youth in this age group were not active enough to expend the amount of energy required to play team sports for one hour or run for 30 minutes, combined with an accumulated hour of walking throughout the day. Fifty-nine percent of youth 15 to 19 years of age were considered sedentary, compared with 51% of youth 12 to 14 years of age. The good news, however, is that between 1994 and 2000, the proportion of teenagers who were physically active increased from 35% to 41%. This same survey found girls were significantly less active than boys: 64% of girls were physically inactive compared to 48% of boys.

In another national survey of children ages five to 17 (CFLRI, 2000), over half were not active enough to support optimal growth and development and, once again, girls were less active than boys. This survey also highlights the drop in physical activity in both sexes from pre-adolescence to adolescence. Between the ages of five and 12, 44% percent of girls were considered active but, in adolescence, only 30% were active. In boys ages five to 12, 53% were active, compared to 40% in adolescence.



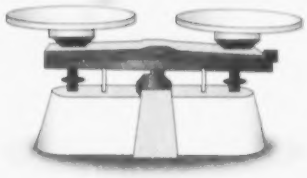
IV. The Complex Factors that Affect Weight

Although body weight is the relationship between "energy in" and "energy out", the amount of food we eat and how we live are influenced by a complex combination of biological, lifestyle, socio-economic, cultural and environmental factors. Figure 6 illustrates the mix of factors that help determine weight.

Figure 6: Determinants of Body Weight

Individual biological factors
- Genetics
- Age
- Sex
- Family history
- Ethnicity
- Prenatal determinants (e.g., birth weight)
- Metabolic susceptibility, insulin resistance
- Appetite control and satiety
- Body composition (muscle mass, bone density and fat)

Social, economic and cultural factors
- Income
- Education
- Cultural norms
- Family life (e.g., family meals, activity patterns)
- Acceptability of overeating (large meals and portion sizes)



Lifestyle, behavioural and health factors
- Dietary intake and eating patterns
- Emotional eating, stress
- Taste preferences
- Physical activity levels
- Sedentary behaviours, television/viewing, video games
- Breastfeeding
- Physician counselling
- Medications

Environmental factors
- Community environment (e.g., proximity of grocery stores, markets, restaurants, and public spaces)
- Geographic differences (e.g., remoteness, urban design, lack of sidewalks or walking trails)
- Transport (e.g., public transit, bike lanes)
- School environment in terms of physical activity, food availability and curriculum
- Food costs (e.g., fruits and vegetables, milk products)
- Food industry influences (e.g., super-size portions, food marketing and advertising)
- Food labelling, including health claims
- Proliferation of high energy food available 24/7 in fast food restaurants, gas stations, and convenience stores

Based on information from: *A National Dialogue on Healthy Body Weights, 2004*; *the Merck Manual of Diagnosis and Therapy, 2004*; Raine, 2004.

The Impact of Individual Biological Factors

Biological factors such as age, sex, genetics, ethnicity, and family history play an important role in people's weight. As people age, they require fewer calories each day to breathe and pump blood. Several genes seem to have the capacity to cause obesity or to increase the likelihood of people becoming obese (Perusse et al, 1997). Children of obese parents have a higher risk of becoming obese than do children of non-obese parents (Maffeis, 2000). Twin, adoption, and family studies indicate that inheritance is able to account for 25% to 40% of weight differences between individuals (Bouchard, 2001).

Although genes and other biological factors may predispose some people to obesity, it is the interaction between biology and the environment that causes people to become overweight.

The Impact of Lifestyle, Behavioural and Health Factors

Lifestyle choices, including our eating and activity patterns, have an impact on weight. As the food and beverage consumption data indicated, Ontarians are now consuming more prepared coffee drinks and soft drinks (Statistics Canada, 2004). According to a national study of the food habits of Canadians, adults consume about 28% of their total calories from "other foods", which include foods that are mainly fat and oils, foods that are mainly sugar, high fat/high salt snack foods, beverages, and condiments (Pasut, 2001). These foods tend to be high in calories but low in essential nutrients. This eating pattern suggests that Canadians are eating more empty calories rather than making selective choices for health (Statistics Canada, 2003).

> *Did You Know?*
> According to a study of Canadian youth, students' daily breakfast consumption declines as they moved from grade 6 to 10. For girls, the increase in "breakfast skipping" was dramatic between grades 6 and 8; at all grade levels, fewer girls than boys reported eating breakfast every day (King et al, 1999).

Weight is affected not only by what we eat, but by when and where we eat. For example, skipping breakfast is associated with overweight and obesity. According to US national survey data, adults who skip breakfast or eat a high fat, low-fibre breakfast, such as meat and eggs, tend to have a higher BMI than people who eat ready-to-eat or cooked cereal or quick breads.[1] These survey findings are consistent with the research literature, which shows that skipping breakfast may lead to overeating later in the day (Cho et al, 2003).

Canadians are also eating more foods away from home than they did in the past: about 14% of Canadians eat out at restaurants two or three times a week and about 10% eat take-out food two or three times a week (Joint Initiative, 2004). This eating pattern can have an impact on weight because people consume more calories when they eat large restaurant portions (Young and Nestle, 2002).

[1] Although there are no set guidelines for a healthy breakfast, recommendations usually include one serving of vegetable or fruit, one serving of a low fat grain product and one milk product or meat alternative.

Weight is also affected by how active people are. Over the past few decades, people have become more sedentary and spend more time watching television and using the computer. According to Statistics Canada (2003), Ontarians age two and up spend almost 21 hours a week watching TV. Children ages two to 11 watch an average of 14.5 hours a week, while youth (12 to 17 years of age) spend approximately 14 hours a week watching TV. This does not include time spent playing video and computer games or using the Internet. The amount of time Canadian children spend playing video games is among the highest in the world (Research Unit in Health and Behavioural Change, 2000).

Physician counselling or the lack of it can also have an effect on people's knowledge and their lifestyle choices. According to a 1996 US study, fewer than half of adults who were obese reported being advised by their healthcare professionals to lose weight (Kushner, 1995). The barriers to physicians providing nutrition counselling include: lack of reimbursement, limited time during office visits, inadequate materials, lack of training in counselling skills and low confidence in their ability to counsel patients about diets. While physicians can play a key role in helping people manage their weight, some patients – particularly those with medical conditions associated with weight or nutrition (e.g., diabetes) – will need more in-depth nutrition counselling and should be referred to registered dietitians. In communities where access to registered dietitians is limited, general information on healthy weights, healthy eating and physical activity is available from the local public health unit.[1]

[1] For a listing of Public Health Units in Ontario, check: http://www.health.gov.on.ca

The Impact of Social, Economic and Cultural Factors

Certain social, economic and cultural factors, such as income, education and culture, affect weight.

Income

Many low income Canadians do not have enough to eat or enough nutritious food. Canadians who do not have a regular or secure supply of food are most likely to be: in low income households or dependent on social assistance; single-parent families headed by women; tenants; children; and Aboriginal people (Che and Chen, 2001). Low income can compromise people's food choices, weight and health. For example, women in families using food banks in Toronto consume fewer fruits and vegetables than those with a secure food supply (Tarasuk, 2001). The association between compromised diet quality and overweight and obesity requires further study.

In terms of activity levels, there is a clear relationship between income and participation in organized sports, unorganized sports and physical activities. According to a special report by the Canadian Fitness and Lifestyle Research Institute (Cragg et al, 1999):

- 75% of children in high income families participated in organized sports at least weekly, compared to 25% of children in low income families.
- 82% of children in high income families participated in unorganized sports and physical activities at least weekly compared to 65% of children in low income families.
- youth in families with higher incomes were more active than youth in families who were less well off.

Did You Know?

While some eating patterns are associated with overweight and obesity, others are associated with healthy weights. For example:

- breastfeeding has been shown to be associated with a small but consistent protective effect against obesity risk in later childhood (Arenz et al, 2004)
- eating more vegetables and fruits is associated with healthy weights, weight loss and better weight management (Rolls et al, 2004) and with the prevention of cardiovascular disease and certain cancers.

Despite the health and weight benefits of eating more fruits and vegetables, 40% of adults in Ontario do not consume the 5 to 10 servings a day recommended by *Canada's Food Guide to Healthy Eating* (Cancer Care Ontario, 2003).

These data indicate that families with higher incomes may be in a better position to pay for registration fees, equipment, and travel to and from games and practices. Children from higher income families may also live in neighbourhoods with better parks and facilities, such as pools or recreation centres. They may own their own play structures or pools, and be better able to afford outdoor play equipment such as skates, hockey sticks and basketball nets.

The same income-related trend can be seen in adults: the proportion who are physically active increases from 44% to 62% as their income levels increase (National Population Health Survey, 1999).

Education

Education has been linked with body weight, diet and physical activity:

- According to a study of Ontario adults 18 to 64 years of age, the group with the least education had the greatest proportion of overweight and obese women (57%). Although university-educated men were the least likely to be overweight or obese, the study found no consistent trend between education and weight in men (Cancer Care Ontario, 2003).
- The same study of Ontario adults found that men who were university graduates were less active than men with other levels of education, while women with some post-secondary education or a university degree were somewhat more likely to be active for at least 3 hours per week than women with other levels of education (Cancer Care Ontario, 2003).
- A national survey found that the proportion of people who were physically inactive decreased as their education levels increased: from 64% among those with less than secondary school education to 51% among university and college graduates (National Population Health Survey, 1998/99).
- Ontario adults with the lowest education levels – both men and women – were the least likely to eat at least five servings of fruits and vegetables each day (Cancer Care Ontario, 2003).

Culture

Culture and family life also have an impact on weight. Food is often used to express cultural traditions – although there is a great degree of variation among people within cultures in food use, income and acculturation (i.e., the process by which a person gradually adopts the habits and traits of a more dominant culture) (Satia-Abouta et al, 2002). Because of the lack of nutrition surveillance data in Canada, there is little information on the dietary patterns of Canadians from other countries and cultures.

Culture and ethnicity can also affect perceptions of body weight: a US study of parents of preschoolers found that self-perceptions of obesity differed by race (Baughcum, 2000).

Nutrition studies have linked parents' eating habits, control and role modelling with children's eating habits and, in some cases, with children's weight (Johnson and Birch, 1994; Wardle et al, 2001). For example:

- when families use high fat or high sugar foods as rewards, children learn to prefer these foods
- children whose parents are obese exhibit greater preference for high fat foods and lower preference for vegetables and fruits than children of parents who are a healthy weight
- children whose parents control the amount of food they eat are less able to self-regulate their food intake
- adolescents who eat meals with their families have healthier eating habits.

Did You Know?
Family meals matter.

In a large study of nine to 14 year-olds, children who ate family meals consumed more fruits and vegetables and less fried food, soft drinks and foods high in trans and saturated fat than those who did not. Families who eat meals together may be more committed to healthy eating than others, or eating family dinners may encourage children to eat healthier foods than they would choose on their own (Gillman et al, 2000).

Culture combined with the length of time that new immigrants are in Canada also have an impact on physical activity and sport participation. For example, 59% of children who had immigrated to Canada within the four years before being surveyed had almost never participated in organized sports, compared with 37% of those who had been here more than five years and 42% of those who were born in Canada (Cragg et al, 1999). In general, 26% of children who had been in Canada for less than five years were active compared to 45% of those who were born in Canada. One reason for low participation rates could be that the opportunities for physical activity available to new Canadians are not familiar to them (i.e., not what they would have done in their country of origin). Language and low income may also be barriers to physical activity for new immigrants of all ages.

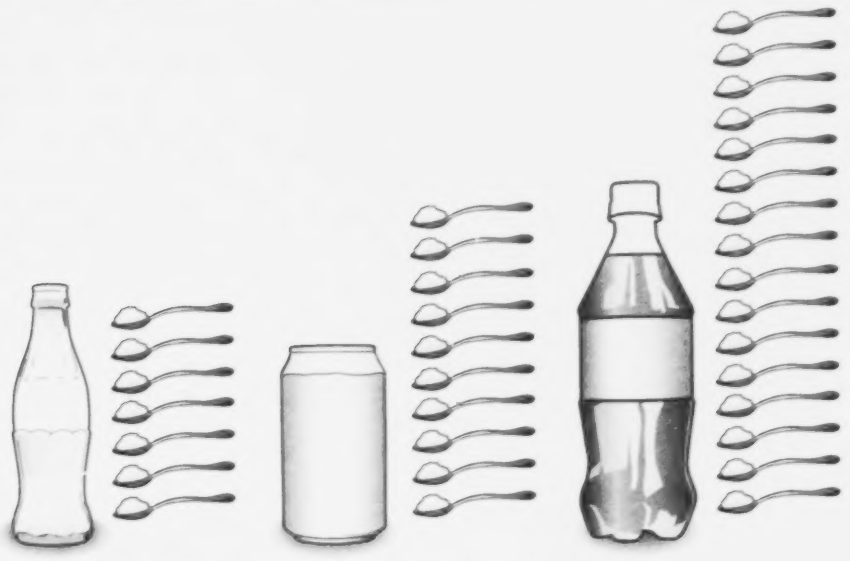
The Impact of Environmental Factors

While genetic factors have an impact on weight, they are not the main cause of the rapid increase in overweight and obesity that has occurred in industrialized countries. It is obesity-promoting or obesogenic environments combined with lifestyle choices that are helping to create the obesity epidemic (Lobstein et al, 2004).

The environment has a direct impact on what we eat, our food preferences, and how much we eat. For example, the type and variety of foods that we can buy and eat is very different today than it was 50 years ago. With the globalization of the food supply, Ontarians can purchase fresh produce all year around that was once available only in season. Fruits that were once considered exotic, such as mango and pineapple, are now quite common.

Food companies have developed and actively market many new convenience foods to meet consumer demand – many of which are high-fat, high calorie foods. The advertising of foods to children has been linked to overweight and obesity. According to a recent report, "…it appears likely that the main mechanism by which media use contributes to childhood obesity may be through children's exposure to billions of dollars worth of food advertising and cross-promotional marketing …" (Henry J. Kaiser Family Foundation, 2004). While the magnitude of the impact of food advertising on childhood obesity is not clear, the evidence indicates that media-related policies should be part of a comprehensive effort to prevent and reduce childhood obesity (Henry J. Kaiser Family Foundation, 2004). Several industrialized countries, such as Sweden, Norway and Finland, have adopted policies designed to protect children from excessive marketing practices, and the Quebec Consumer Protection Act prohibits advertising of certain products to children under 13 years of age.

Portion sizes have increased, and this change is directly linked to the increase in overweight and obesity. According to US data, foods available in the marketplace almost universally exceed the sizes of those offered in the past. Cookies have increased in size 700% (Young and Nestle, 2002). This "supersizing" affects overall calorie intake, even in children (McConahy et al, 2004). Eating a 43 gram bag of potato chips, a 75 gram chocolate bar and a 355 mL can of cola is equivalent to taking in 10 teaspoons of fat, and 18 teaspoons of sugar (OSNPPH School Nutrition Workgroup, 2004).



250 mL (8 oz.)
97 kcal (calories)
7 tsps sugar

355 mL
152 kcal (calories)
10 tsps sugar

591 mL
260 kcal (calories)
16 tsps sugar

The environment also affects how active we are. Mechanization, industrialization, and urbanization have had a major impact on physical activity, both by choice and by necessity. The advent of remote controls for household devices, escalators, elevators, drive-through restaurants and banks, and pay-at-the pump services have had a cumulative effect on the amount people move. According to physical activity experts, we have engineered physical activity out of our lives.

Did You Know?

Most people do not know how much is enough.

In a survey done by the Sudbury District Health Unit, most people (82%) knew how many "portions" of the different food groups they should be eating based on Canada's Food Guide to Healthy Eating, but just over half (53%) could correctly identify the appropriate portion size (Malaviarachi et al, 2003).

Community growth and design has led to urban sprawl which, in turn, encourages people to drive rather than walk to work, school or stores. According to a recent American study (Ewing R et al, 2003) people whose homes are in high sprawl areas far from work and stores and who rely more on cars weigh more than people who live in compact cities. This may help explain some of the regional weight differences in Ontario. Most of the health unit areas with lower rates of overweight and obesity have large urban centres.

The environments where people spend their days also have an impact on their access to healthy food and their level of physical activity. For example, many people work in jobs where they spend long periods of time working at a desk, with little opportunity to be physically active.

Changes in education curriculum and other pressures in the school system have had an impact on both the number of physical education teachers and the opportunities for children to be physically active during the school day.

Did You Know?

Specialist physical education teachers provide more comprehensive physical education programs than regular classroom teachers who do not have the knowledge or skills to help students be active. Students taught by trained physical education teachers are twice as likely to be very active as children taught by regular classroom teachers (People for Education, 2002).

Recess and lunch periods are excellent, but often neglected, opportunities to provide organized activities and games to increase physical activity during the school day.

Despite research indicating that well-developed physical education programs have a positive impact on students' health and well-being and lead to improved academic test scores, there has been a steady decline in the number of elementary schools with physical education teachers in Ontario (People for Education, 2004).

- In 2003, 30% of schools reported having either a full- or part-time physical education teacher, compared to 41% in 1997/98 (People for Education, 2004).
- In 2002, the ratio of students to physical education teachers was 1185 to one in elementary schools (People for Education, 2002).
- In 2000/2001, half of Canada's children ages six to 17 reportedly had physical education classes three or more days a week at school and only 17% had daily physical education (CFLRI, 2002).

How Our Obesogenic Environment Affects Weight

Our environment affects both "energy in" and "energy out".

More Energy In

Many factors in our environment lead to people taking in more energy, including:

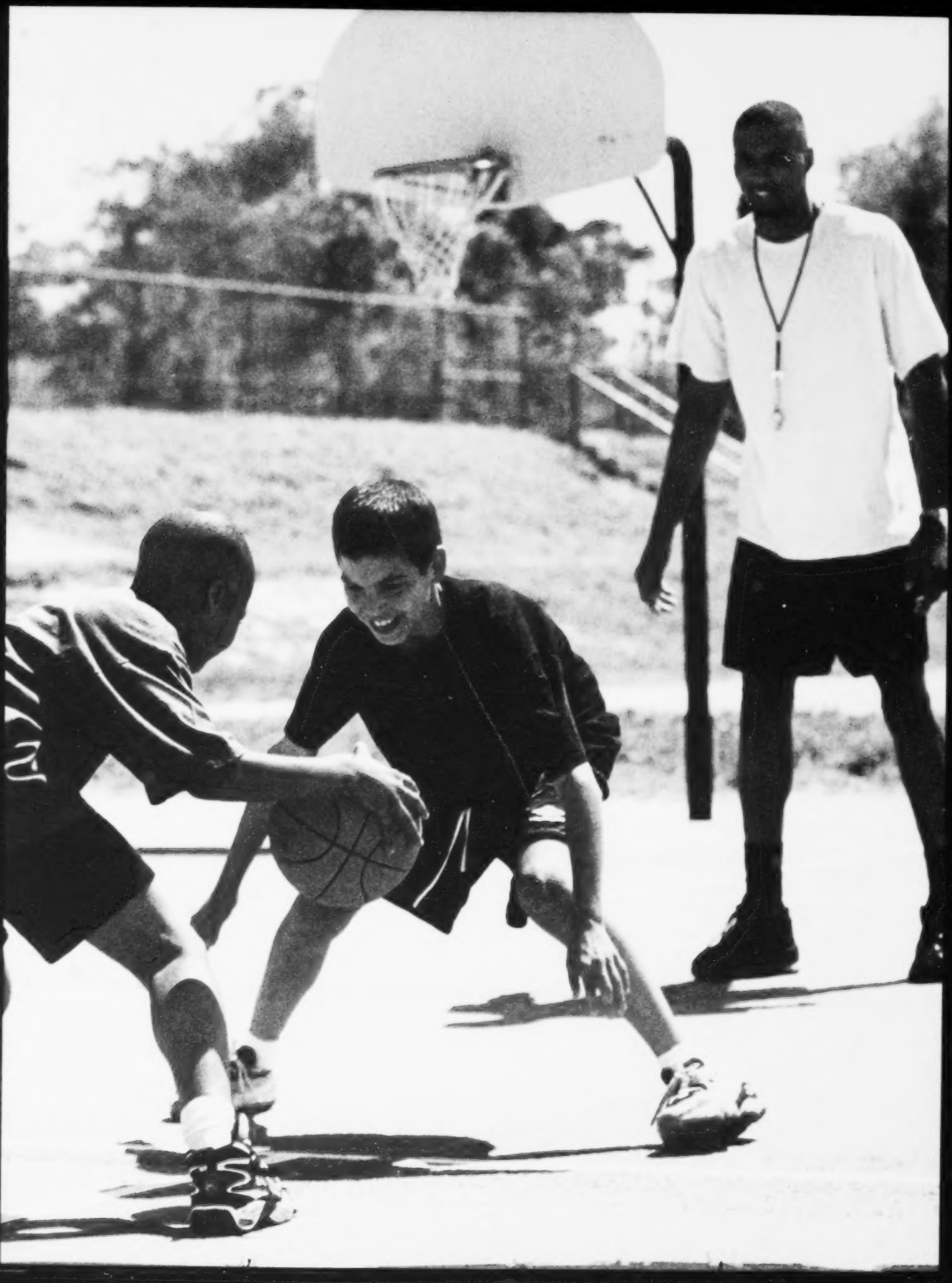
- the increasing availability and variety of energy dense foods
- the active promotion and marketing of energy dense foods
- more frequent opportunities to purchase food
- greater use of restaurants and fast food stores including drive-thru fast food places
- larger food portions that offer better 'value' for money
- an increase in the number and frequency of eating occasions
- the trend to consume soft drinks instead of water or milk.

Less Energy Out

Many factors in our environment mean people are putting out less energy, including:

- the lack of public transportation and the large distances to travel to shopping areas, schools and work in sprawling suburban areas and in rural areas
- the increasing use of cars and other motorized transport, even for short trips
- the decrease in the number of children walking or cycling to school
- urban design features such as lack of sidewalks, poorly lit paths and sidewalks that discourage people from walking
- building design with uninviting stairwells that discourage physical activity
- the proliferation of labour-saving devices including home computers, TV remote controls and dishwashers
- the increase in sedentary recreation activities, such as video games and the internet
- multiple TV channels operating around the clock and the increasing popularity of the 'home-theatre'
- the costs associated with healthy eating and physical activity, which can create barriers to healthy living for people with low incomes and increase social disparities.

(Adapted from: Lobstein et al., 2004)

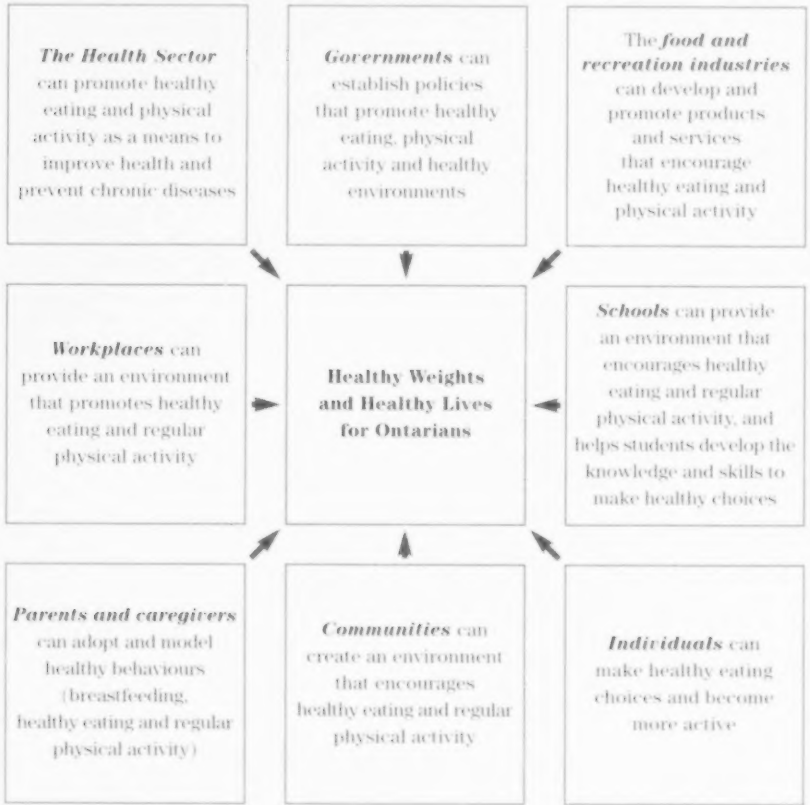


V. Healthy Weights, Healthy Lives: Creating Environments that Promote Healthy Weights

Because social and environmental factors have such a strong influence on weight, the problem of overweight and obesity cannot be solved by individuals on their own or by the healthcare sector alone. Reversing this serious health trend will require a coordinated, sustained, multisectoral response. Communities must work together to create the kind of environments that help their citizens achieve and maintain healthy weights.

Who Should Be Involved?

Many people and organizations have a role to play:


The Health Sector can promote healthy eating and physical activity as a means to improve health and prevent chronic diseases
Governments can establish policies that promote healthy eating, physical activity and healthy environments
The ***food and recreation industries*** can develop and promote products and services that encourage healthy eating and physical activity
Workplaces can provide an environment that promotes healthy eating and regular physical activity
Healthy Weights and Healthy Lives for Ontarians
Schools can provide an environment that encourages healthy eating and regular physical activity, and helps students develop the knowledge and skills to make healthy choices
Parents and caregivers can adopt and model healthy behaviours (breastfeeding, healthy eating and regular physical activity)
Communities can create an environment that encourages healthy eating and regular physical activity
Individuals can make healthy eating choices and become more active

Our Choice: An Obesogenic Environment … or an Environment that Promotes Healthy Weights?

How Obesogenic is Your Community? What Can You Do to Change It?

Where should communities start in their efforts to create environments that promote healthy eating and regular physical activity? The ANGELO (Analysis Grid for Environments Linked to Obesity) framework (Swinburn et al, 1999) is a conceptual model designed to help communities identify obesity-promoting environments and set priorities for action.

The framework divides the environment by size (micro or macro environment) and type (physical, economic, political or sociocultural):

Micro Environments – the settings where people live, work and play, such as

- homes
- workplaces
- day care centres
- schools, colleges and universities
- community groups (e.g., clubs, churches)
- community places (e.g., parks, shopping malls)
- food retailers (e.g., supermarkets)
- food service outlets (e.g., cafeterias, restaurants)
- recreation facilities (e.g., recreation centres, pools, gyms)
- neighbourhoods (e.g., parks, walking and bicycle paths, sidewalks, street safety)
- transport service centres (e.g., airports, bus stations)
- local health services (e.g., doctors' office, hospitals)

Macro Environments – the larger sectors and systems that shape our lives, such as:

- technology/design (e.g., labour-saving devices, architecture)
- media (e.g., magazines, television)
- food industry – production, importing, processing, distribution and retail
- food marketing (e.g., food advertising)
- sports/leisure industry (e.g., instructor training programs)
- urban/rural development
- transport system (e.g., public transportation system)
- health system (e.g., government, institutions, providers, and professional associations)

Using the ANGELO framework, communities can examine each setting or environment, and identify the physical, economic, policy and socio-cultural factors that affect eating and physical activity patterns. By completing the grid, communities can identify the barriers to healthy weights in each setting and use that information to set priorities and develop a healthy weights action plan.

Here's an example – using a typical day in the life of two nine year-old children (see Figure 7) – of how communities can either be obesogenic (i.e., promote fatness) or actively create environments that help children achieve and maintain healthy weights. It demonstrates how a community-wide, multisectoral response can have a significant impact on weight and health.

Figure 7: The Impact of Environment on Children's Weight

	Obesogenic environment	Environment that promotes healthy weights
Breakfast	Marie has a bowl of sweetened cereal she saw advertised during her favourite TV show.	Alex has a choice of fruit or juice and whole grain cereal, with milk.
Getting to school	Her parents worry about her safety walking to school, so they drive her.	His neighbourhood has organized a walk-to-school program. The children walk together accompanied by an adu
At school	Her school does not offer daily physical education. She wanted to try cross-country running but only faster students are allowed to compete on the school team.	Alex has quality physical educatio at school every day. The children parents, school staff, and health unit have worked together to develop a healthy food and nutrition policy. The school curriculum incorporates education on healthy eating, regular physical activity and positive self-esteem.
Recess	Marie and her friends spend recess standing in the playground avoiding the bullies.	Recess is fun! Alex and his friends spend recess in the playground. Trained senior student peer facilitators lead playground games and activities for all students.
Lunch	There is a fruit flavoured drink in Marie's lunch box and a sandwich and cookies, but no fruit or vegetables.	In Alex's lunch bag, there is a sandwich, yogurt and a piece of fruit.
After school	Her babysitter gives her a glass of juice and cookies for a snack. Marie's friend comes to play after school. They play video games for two hours.	Alex's babysitter makes him a fruit smoothie from a recipe provided by the local health unit and published in the school newsletter. Then Alex and his friends play in the local park, where parents take turns providing supervision.
Dinner	When Marie's parents get home from work, they are rushed for time so they order a pizza with few vegetables.	Alex's parents heat up a healthy chicken and vegetable casserole that they had prepared on the weekend.
Evening	Marie watches two hours of television, and has a high fat granola bar and a fruit drink before going to bed.	Because of public education campa in the community (e.g., TV-Turnoff Week), Alex's family limits the amou of time their children spend watching TV; instead, the family walks the dog or enjoys an activity together.
	Marie is overweight.	Alex is a healthy weight.

(Adapted for use from Calgary Prevention of Obesity Steering Committee *"Community Prevention of Obesity ... A Framework for Community Action"*. Retrieved from the "Resources" icon: www.calgaryhealthregion.ca/childobesity/index.htm.)

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At school	Her school does not offer daily physical education. She wanted to try cross-country running but only faster students are allowed to compete on the school team.	Alex has quality physical education at school every day. The children, parents, school staff, and health unit have worked together to develop a healthy food and nutrition policy. The school curriculum incorporates education on healthy eating, regular physical activity and positive self-esteem.
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(Adapted for use from Calgary Prevention of Obesity Steering Committee, *Community Prevention of Obesity — A Framework for Community Action*". Retrieved from the 'Resources' icon: www.calgaryhealthregion.ca/childobesity/index.htm.)

A Commitment to Creating Environments that Promote Healthy Weights

The World Health Organization is urging member states to develop, implement and evaluate policies and programs that promote individual and community health through healthy diet and physical activity (57th World Health Assembly, 2004). Ontario has an opportunity to become a leader in developing an innovative, comprehensive, multi-level, multi-sectoral strategy to create environments that promote healthy weights.

An effective strategy for Ontario must be based on best available scientific research and evidence. It must cover nutrition and physical activity through all the ages and stages of life: from maternal and child health through to old age. It must reach children in school and adults in the workplace. The strategy must also be sensitive to differences in dietary habits and physical activity patterns based on gender, income and ethnicity, and take into account the needs of vulnerable populations.

Recommendations for Action

While the Ministry of Health and Long-Term Care and Ontario Boards of Health have the primary responsibility for promoting healthy weights, they must engage other ministries, other levels of government, and the food industry, workplaces, schools, families and individuals in dealing with this serious health challenge.

The Chief Medical Officer of Health for Ontario recommends a comprehensive, multisectoral strategy to help the people of this province achieve and maintain healthy weights, and enjoy healthy lives.

Governments

To create a provincial environment that promotes healthy weights, the Government of Ontario should:

1. Develop an innovative, comprehensive, multisectoral plan to address healthy weights, led by the Ministry of Health and Long-Term Care and involving the Ministries of Tourism and Recreation, Agriculture and Food, Children and Youth Services, Education, Training, Colleges and Universities, Transportation, Public Infrastructure Renewal, Community and Social Services, Environment, Municipal Affairs and Housing, Consumer and Business Services, and Finance as well as non-governmental organizations (NGOs).

2. Develop a targeted, strategic, well-resourced mass media campaign to:
   - increase awareness of the health benefits of healthy weights
   - promote healthy eating based on *Canada's Food Guide to Healthy Eating*
   - promote regular physical activity based on *Canada's Physical Activity Guides to Healthy Active Living* for adults, older adults, children and youth
   - promote energy balance for all Ontarians, especially children.

3. Develop policies and programs that promote healthy eating, including:
   - exploring policy options to control food advertising targeting children similar to those now in place in Quebec, where advertising of some products to children under 13 is prohibited. (A number of European countries have introduced legislation to ban advertising aimed at children.)
   - investigating the potential impact of food pricing options on consumption patterns, especially for communities where healthy foods, such as fruits and vegetables, are particularly expensive
   - building on the Ministry of Agriculture and Food's Foodland Ontario program, which promotes Ontario grown fruits and vegetable, by adding health messages to its materials.

4. Develop policies that promote physical activity, including:
   - investigating the extent to which costs, such as user fees for recreational facilities, registration fees or taxes on recreational programs and third party liability insurance, are a barrier to physical activity
   - supporting public transportation and infrastructure to encourage safe, active transportation options, including bicycle lanes, sidewalks, and design requirements that facilitate pedestrian access to commercial areas and recreation facilities
   - ensuring that professionals who support physical activity in our communities (e.g., teachers, day care providers, public health staff, recreation staff, youth group leaders) have access to timely, high quality training and technical assistance to support their work
   - establishing Ontario as Canada's leader in physical activity by vigorously supporting the *ACTIVE 2010* Physical Activity and Amateur Sports Plan developed by the Ministry of Tourism and Recreation.
5. Conduct ongoing, province-wide health surveillance for chronic disease risk factors, including weight, physical activity and dietary intake, and using this information to inform policy and program decisions provincially and at the local health unit and municipal/regional level.
6. Partner with the private sector to highlight successful private sector initiatives to promote healthy eating and regular physical activity.

To create a national environment that promotes healthy weights, Health Canada should:

1. Invest resources in a long-term, multi-level integrated strategy to promote healthy weights, healthy eating and physical activity based on the WHO Strategy and work with provincial/territorial partners to implement the Pan-Canadian Healthy Living Strategy.
2. Fund, through the Canadian Institute of Health Research, applied public health research that will encourage practitioners and academics to investigate effective interventions to improve eating habits, physical activity and healthy weights.
3. Phase out trans fat from processed foods and broaden mandatory nutrition labelling to:
   - cover fresh meat, poultry and seafood (i.e., foods that were exempted from mandatory nutrition labelling rules finalized in January 2003)
   - require large chain restaurants to disclose basic nutrition facts (e.g., calories) about the foods they serve.
4. Fund a national fruit and vegetable promotional campaign similar to the US 5 *A Day to Better Health* program.
5. Fund a national physical activity promotion program, based on the ParticipACTION model, to coordinate multi-faceted physical activity promotion efforts across Canada.

To create a local environment that promotes healthy weights, local and regional governments/communities should:

1. Examine community planning policies and processes to identify how local communities can promote physical activity, reduce barriers to physical activity for everyone, and engage young people in physical activity.
2. Provide education and training for community planners, engineers, architects and decision-makers in "active living by design".
3. Provide more opportunities for people to be physically active by:
   - enhancing park land and recreational areas
   - providing safe walking and cycling routes
   - providing culturally appropriate and accessible recreational programs
   - designing neighbourhoods with shops and schools within walking distance
   - providing mass transit within walking distance of home, school and work.
4. Ensure young children in day care settings (either home or group settings) have:
   - healthy food choices
   - daily physical activity
   - opportunities to learn about the benefits of healthy eating and physical activity
   - day care providers who are trained and knowledgeable about healthy eating and daily physical activity.
5. Identify people in leadership positions – elected officials or managers – to act as role models.
6. Organize specific physical activity events or include physical activity opportunities at existing community events. Serve healthy food choices at these events.
7. Integrate healthy eating and physical activity opportunities into new and existing community programs such as prenatal classes, Early Years Centres and after school programs.

The Health System

To help create environments that promote healthy weights, the health system should:

1. Update the Mandatory Health Programs and Services Guidelines for healthy eating and physical activity promotion, and make them part of an integrated approach to Chronic Disease Prevention.

> Ontario's Boards of Health have a mandate to promote health and prevent disease. Many have taken the lead in promoting healthy eating, physical activity and healthy weights.

2. Support Boards of Health in improving compliance with provincial standards and enhancing activities to develop, implement and evaluate evidence-based, culturally appropriate interventions that meet the unique needs of their communities.
3. Encourage primary healthcare providers to:
   - discuss healthy eating and physical activity with their patients
   - include BMI measurements in regular health assessments, and monitor changes in BMI for adults and for children ages 2-20 using the BMI-for-age CDC Growth Charts
   - refer patients to comprehensive weight management programs when appropriate.
4. Encourage primary care provider organizations to develop and disseminate tools that primary care providers can use to help patients achieve and maintain healthy weights.
5. Encourage the development of specialized comprehensive, interdisciplinary weight management clinical services, similar to a model developed at McMaster Children's Hospital, Children's Exercise and Nutrition Centre.
6. Give Ontarians better access to information and counselling on healthy eating and physical activity by building on existing initiatives, such as Telehealth Ontario.

Food Industry

To help create an environment that promotes healthy weights, the food industry should:

1. Phase out the use of trans fats in processed foods.
2. Decrease serving sizes, especially of snack foods.
3. Develop healthier prepared foods as options for busy families.
4. Increase user-friendly food labelling on large chain restaurant menus and take-out/deli foods.
5. Partner with governments and local communities to promote and provide healthy food choices.

Workplaces

To create working environments that promote healthy weights, workplaces should:

1. Develop a corporate culture that values and supports healthy eating, physical activity and employee wellness.
2. Audit the workplace, assessing available food choices and opportunities for physical activity. Discuss findings with staff and identify ways to make improvements.
3. Plan "Health Days": quarterly events that focus on aspects of healthy weights and healthy living.
4. Implement strategies to help people be more physically active at work, such as:
   - using stepmeters/pedometers
   - building a task team to identify ways to increase physical activity opportunities
   - making stairways accessible
   - arranging for exercise breaks
   - allowing employees time to be physically active during the day
   - adjusting working hours to allow parents to walk their children to school
   - providing physical activity facilities, programs and incentives.
5. Identify and implement strategies to promote healthy eating at work, such as ensuring vending machines and cafeterias offer healthy choices.

> **Eat Smart!** is a program developed by Ontario public health units that gives awards to restaurants and cafeterias who meet high nutrition standards.

6. Develop a policy to support women returning to work to continue breastfeeding.

Schools/School Boards

To create learning environments that promote healthy eating, schools and school boards should:

1. Assess school environments (e.g., cafeterias, vending machines, opportunities for physical activity, fund-raising and special food days), develop plans to create a healthy school environment, and monitor progress.

> *Did You Know?*
> School-based programs work. Here is one example of a "best practice" school-based approach.
>
> The Gimme 5 intervention in US high schools involved:
> - a mass media campaign in schools
> - five 55-minute workshops per year about healthy eating knowledge, attitudes and skills
> - more fruits and vegetables in the cafeteria
> - mailings to parents with recipes, calendars, tips and information brochures.
>
> As a result of the three-year program, students increased their consumption of fruits and vegetables by over 2.5 servings per day on average (Thomas et al, 2004).

2. Promote healthy eating by:
   - developing guidelines for foods available in Ontario school cafeterias and vending machines, on special food days, and for fund-raising
   - including nutrition in the curriculum and integrating new material on Canada's nutrition labelling system
   - ensuring teachers receive appropriate training to teach nutrition.
3. Establish the foundation for lifelong physical activity by:
   - providing quality daily physical education
   - ensuring physical education classes are taught by teachers trained in physical education
   - providing daily physical activity opportunities through active recess and lunch programs, and intramural activities.
   - educating children about the benefits of regular physical activity.
4. Allow community groups that promote healthy eating and physical activity (e.g., Scouts, Guides, community sports leagues, seniors' life-long learning groups) to use school facilities after hours and on weekends for a nominal cost.
5. Encourage parents to support healthy eating and physical activity at home.
6. When building or retrofitting schools, include features that support physical activity and healthy eating, such as:
   - bicycle racks
   - active and safe routes to schools
   - adequate, separate indoor facilities to support quality daily physical activity
   - kitchen facilities
   - adequate space for students to eat lunch.

The Walking School Bus

Many parents would like their children to walk to school, yet many children who live within walking distance of schools are driven to school. The walking school bus (WSB) is an effective, low-cost way to increase physical activity, maintain safety, and reduce car use and air pollution.

How does it work? A designated parent or trusted adult leads a group of children on the walk to school. Children may gather at the WSB leader's home or the leader may go from house to house to collect the children. In some communities, parents take turns being the WSB leader.

WSB programs are now in place in many countries, including the USA, UK, and New Zealand. Canada actively supports the Walking School Bus concept through the Active and Safe Routes to School initiative, which is spearheaded by Go For Green nationally, coordinated by Green Communities Association provincially, and implemented with the help of many local Boards of Health throughout Ontario.

Many school communities now participate in different programs of the Active and Safe Routes to School initiative, including Walking Wednesdays, Trekking Tuesdays, Cycling School Buses, Bussing drop-off zones, and International Walk to School Day events.

Something as simple as the Walking School Bus highlights the importance of a multisectoral, collaborative approach. Parents play a lead role. Employers can help parents participate by offering flexible work hours. Municipalities can designate safe corridors for children walking to school and provide active traffic enforcement when children are walking to and from school. Schools can recognize the important contributions made by adults who volunteer to lead the WSB.

Additional information available at www.goforgreen.ca, www.saferoutestoschool.ca, www.gca.ca and www.walkingschoolbus.org

Individuals, Parents and Caregivers

To create a home environment that promotes healthy weights, and to achieve and maintain a healthy weight, you as individuals, parents and caregivers should:

1. Follow Canada's Food Guide to Healthy Eating,[31] and Canada's Physical Activity Guide to Healthy Active Living[32] and put yourself on the right track for healthy weight and overall health.
2. Monitor your body mass index (BMI) and waist circumference (WC) and discuss any changes or concerns with your primary healthcare provider. If you are considering a more strenuous level of activity and have concerns, talk to your primary healthcare provider.
3. Set personal goals to improve eating habits and increase physical activity, and develop strategies to help you reach your goals, such as:
   - plan your activity in one week blocks and take small steps that are achievable
   - keep a food and physical activity diary to identify changes you can make to improve eating and activity patterns
   - use a pedometer or stepmeter to track the number of steps you take each day and gradually increase your daily step total to at least 10,000 steps
   - strive to get at least 30 minutes of physical activity every day, starting slowly with three 10-minute bouts
   - mark your progress with an exercise chart that tells you and your family that you are on the right track
   - take the stairs instead of an elevator, get off the bus a stop earlier and walk home, park at the far edge of the parking lot and walk to the store
   - choose activities that you enjoy
   - share your goals with friends and family so that you have a support system of people who care about you and will join you in physical activity
   - plan social events around activity and invite friends along for a walk, a hike or a game of tennis or badminton
   - reward yourself when you achieve even small goals.
4. Read the labels on food products, and use the information to compare products and make healthier food choices.
5. Help children be more physically active by:
   - sending them outside to play (if safety is an issue, make sure they are supervised). Limit screen time to one hour per day, excluding home work.
   - being role models and demonstrating being physically active every day
   - asking those who provide care for your children (e.g., babysitters, day care providers, camp leaders) to provide opportunities for physical activity throughout the day
   - getting involved in community activities for children by coaching or volunteering.
6. Help children eat healthy by:
   - encouraging them to eat a healthy breakfast everyday
   - limiting sugar-contaning beverages (e.g., soft drinks and sugar sweetened drinks) and snack foods
   - limiting portion sizes
   - enjoying family meals together whenever possible, and role modelling healthy eating.
7. Breastfeed your baby, and support and encourage other mothers to do the same.

[31] Adaptations of Canada's Food Guide to Healthy Eating are available in languages other than English and French through the Ontario Public Health Association's Nutrition Resource Centre. Electronic versions of each resource are available online: http://www.nutritionrc.caguide.html

[32] Copies of these guides are available in different languages from the Ontario Public Health Association at http://www.opha.on.ca/resources/multilingual/physical.html.

Conclusion

The overweight and obesity epidemic is one of the biggest public health challenges facing Ontario today. Healthy weights are a vital part of healthy lives and healthy communities. The Ministry of Health and Long-Term Care will provide leadership in promoting healthy weights. We will work with other levels of government, with healthcare providers, with the private sector, and with individuals to create the same change in attitudes and policies that allowed us to significantly reduce smoking and exposure to second hand smoke in this province.

Working together, we can create communities that promote healthy eating and regular physical activity. We can help Ontarians find the balance between energy in and energy out, and make it easier for people to achieve and maintain healthy weights. We will reverse the current trend to overweight and obesity, and create a healthier Ontario for Ontarians.

Acknowledgements

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References

Arenz S, Ruckerl R, Koletzko B, et al. Breast-feeding and childhood obesity – a systematic review. *International Journal of Obesity*. 2004;28(10):1247-1256.

Baughcum AE, Chamberlin LA, Deeks CM, et al. Maternal perceptions of overweight preschool children. *Pediatrics*. 2000;106(6):1380-1386.

Becker AE, Hamburg P. Culture, the media, and eating disorders. *Harvard Review Psychiatry*. 1996;4(3):163-167.

Bouchard C. Genetics of obesity in humans: current issues. In Chardwick DJ, Cardew GC (eds) the origins and consequences of obesity. Ciba Foundation Symposium 2001. Wiley, Chichester, pp.108-117.

Calle EE, Rodriguez C, Walker-Thurmond K, et al. Overweight, obesity, and mortality from cancer in a prospectively studied cohort of U.S. adults. *New England Journal of Medicine*. 2003;348(17):1625-1638.

Canadian Fitness and Lifestyle Research Institute (CFLRI). Physical Activity Monitor. 2000.

Canadian Fitness and Lifestyle Research Institute. Physical Activity Monitor. 2002.

Canadian Population Health Initiative. Improving the Health of Canadians. Canadian Institute for Health Information. 2004.

Cancer Care Ontario: Insight on Cancer. News and Information on Nutrition and Cancer Prevention. Toronto: Canadian Cancer Society (Ontario Division). 2003. Vol. 2.

Che J, Chen J. Food insecurity in Canadian households. *Health Reports*. 2001;12(4):11-22.

Cho S, Dietrich M, Brown CJ, et al. The effect of breakfast type on total energy intake and body mass index: results from the Third National Health and Nutrition Examination Survey (NHANES III). *Journal of the American College of Nutrition*. 2003;22(4):296-302.

Cole TI, Bellizzi MC, Flegal KM, et al. Establishing a standard definition for child overweight and obesity worldwide: international survey. *British Medical Journal*. 2000;320(7244):1240-1243.

A Collaborative Statement from the Dietitians of Canada, Canadian Paediatric Society, the College of Family Physicians of Canada and Community Health Nurses Association of Canada. The use of growth charts for assessing and monitoring growth in Canadian infants and children. *Canadian Journal of Dietetic Practice and Research*. 2004;65(1):22-32.

Cragg S, Cameron C, Craig CL, et al. Canada's Children and Youth: A Physical Activity Profile, 1999. Special Report Series, Canadian Fitness and Lifestyle Research Institute.

Devlin MJ, Goldfein JA, and Dobrow I. What is this thing called BED? Current status of binge eating disorder nosology. *International Journal of Eating Disorder*. 2003;34 Suppl:S2-18.

Di Ruggiero E, Frank J, Moloughney B. Strengthen Canada's public health system now. *Canadian Journal of Public Health*. 2004;95(1):5,11.

Ewing R, Schmid T, Killingsworth R, et al. Relationship between urban sprawl and physical activity, obesity and morbidity. *American Journal of Health Promotion*. 2003;18(1):47-57.

References (continued)

Flegal KM, Ogden CL, Wei R, et al. Prevalence of overweight in US children: comparison of US growth charts from Centers for Disease Control and Prevention with other reference values for body mass index. *American Journal of Clinical Nutrition*. 2001;73(6):1086-1093.

Ford ES, Williamson DF, Liu S. Weight change and diabetes incidence: findings from a national cohort of US adults. *American Journal of Epidemiology*. 1997;146(3):214-222.

Freedman DS, Dietz WH, Srinivasan SR, et al. The relation of overweight to cardiovascular risk factors among children and adolescents: the Bogalusa heart study. *Pediatrics*. 1999;103(6 Pt 1): 1175-1182.

Gillman MW, Rifas-Shiman SL, Frazier AL, et al. Family dinner and diet quality among older children and adolescents. *Archives of Family Medicine*. 2000;9(3):235-240.

Health Canada. Canada's Physical Activity Guide to Healthy Active Living. Ottawa, 1998.

Health Canada. Canadian Guidelines for Body Weight Classification in Adults. Ottawa, 2003.

Health Canada. The Vitality Approach. A Guide for Leaders. Ottawa, 2000.

The Henry J. Kaiser Family Foundation. Issue Brief: The Role of Media in Childhood Obesity. 2004.

Institute of Medicine. Preventing Childhood Obesity: Health in the Balance. National Academy of Sciences. 2004.

Johnson SL, Birch LL. Parents' and children's adiposity and eating styles. *Pediatrics*. 1994;94(5): 653-661.

Joint Initiative of the National Institute of Nutrition and the Canadian Food Information Council. Tracking Nutrition Trends V. May, 2004.

Jones JM, Bennett S, Olmsted MP, et al. Disordered eating attitudes and behaviours in teenaged girls: a school-based study. *Canadian Medical Association Journal*. 2001;165(5):547-552.

Katzmarzyk PT. Obesity in Canadian children (Correspondence). *Canadian Medical Association Journal*. 2001;164(11):1563-1564.

Katzmarzyk PT, Ardern CI. Overweight and obesity mortality trends in Canada, 1985-2000. *Canadian Medical Association Journal*. 2004;95(1):16-20.

Katzmarzyk PT, Craig CL, Bouchard C. Underweight, overweight and obesity: relationships with mortality in the 13-year follow-up of the Canada Fitness Survey. *Journal of Clinical Epidemiology*. 2001;54(9):916-920.

Katzmarzyk PT, Janssen I. The economic costs associated with physical inactivity and obesity in Canada: An update. *Canadian Journal of Applied Physiology*. 2004;29(1):90-115.

King A, Boyce W, King M. Trends in the Health of Canadian Youth. 1999. Health Canada.

Kushner RF. Barriers to providing nutrition counselling by physicians: a survey of primary care practitioners. *Preventive Medicine*. 1995;24(6):546-552.

Lobstein T, Baur L, Uauy R; IASO International Obesity Task Force. Obesity in children and young people: a crisis in public health. *Obesity Reviews*. 2004;5(Suppl.1):4-85.

Ludwig DS, Peterson KE, Gortmaker SL. Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective , observational analysis. *Lancet*. 2001;357(9255):505-508.

References (continued)

Maffeis C. Aetiology of overweight and obesity in children and adolescents. *European Journal of Pediatrics*. 2000;159(Supp 1):S35-S44.

Malaviarchchi D, Beyers J, Allen R. Does size matter? Quid Pro Quo Sudbury Survey on Food Portion Sizes and Weight. Prepared for Sudbury & District Health Unit Board of Health. October, 2003.

McConahy KL, Smiciklas-Wright H, Mitchell DC, et al. Portion sizes of common foods predicts energy intake among preschool aged children. *Journal of the American Dietetic Association*. 2004;104(6):975-979.

McVey GL, Pepler D, Davis R, et al. Risk and protective factors associated with disordered eating during early adolescence. *Journal of Early Adolescence*. 2002;22(1)75-96.

McVey GL, Tweed S and Blackmore E. Correlates of dieting and muscle-gaining behaviours in 10-14 year-old males and females. *Preventive Medicine*. (In press).

McVey G, Tweed S, Blackmore E. Dieting among preadolescent and young adolescent females. *Canadian Medical Association Journal*. 2004b;170(10):1559-1561.

The Merck Manual of Diagnosis and Therapy. Section 1. Nutritional Disorders Chapter 5. Obesity. http://www.merck.com/mrkshared/mmanual/section1/chapter5/5a.jsp accessed August 30, 2004.

Mokdad AH, Marks JS, Stroup DF, et al. Actual causes of death in the United States, 2000. *Journal of the American Medical Association*. 2004;291(10):1238-1245.

A National Dialogue on Healthy Body Weights: Summary of proceedings. Obesity Canada and the Canadian Institutes of Health Research Institute of Nutrition, Metabolism, and Diabetes. December 7-9, 2001.

National Institutes of Health, National Heart, Lung, and Blood Institute. Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults; the evidence report. *Obesity Research*. 1998;6(suppl2):51-209S.

National Population Health Survey, 1998/99.

OSNPPH School Nutrition Workgroup. Call to Action: Creating a Healthy School Environment. March 2004.

Pasut L. Food Habits of Canadians. Beef Information Centre. 2001.

Perusse L, Chagnon YC, Dionne FT, et al. The human obesity gene map: the 1996 update. *Obesity Research*. 1997;5(1):49-61.

People for Education. Fifth Annual Report on Ontario Elementary Schools, Physical Education. May 2002.

People for Education. Seventh Annual Report on Ontario Elementary Schools, Physical Education. May 2004.

Raine KD. Overweight and Obesity in Canada: A Population Health Perspective. Ottawa: Canadian Institute for Health Information. 2004.

References (continued)

Research Unit in Health and Behavioral Change. Health Behavior in School-aged children. 2000

Resnick HE, Valsania P, Halter JB, et al. Relation of weight gain and weight loss on subsequent diabetes risk in overweight adults. *Journal of Epidemiology and Community Health*. 2000; 54(8):596-602.

Rolls B, Ello-Martin MS, Tohill BC. What can intervention studies tell us about the relationship between fruit and vegetable consumption and weight management? *Nutrition Reviews*. 2004;62(1):1-17.

Satia-Abouta J, Patterson RE, Neuhouser ML, et al. Dietary acculturation: applications to nutrition research and dietetics. *Journal of the American Dietetic Association*. 2002;102(8): 1105-1118.

Statistics Canada. Food Consumption Highlights. Available at http://www.statcan.ca/english/ads/23F0001XCB/highlight.htm. Accessed Nov. 18, 2004.

Statistics Canada. Food Consumption 2003. The Daily. May 26, 2004.

Statistics Canada. Television Viewing, 2002. The Daily. November 21, 2003.

Strauss RS. Childhood obesity. *Pediatric Clinics of North America*. 2002;49(1):175-201.

Swinburn B, Egger G, Raza F. Dissecting obesogenic environments: the development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Preventive Medicine*. 1999; 29(6 Pt 1):563-570.

Tarasuk V. Household food insecurity with hunger is associated with women's food intakes, health and household circumstances. *Journal of Nutrition*. 2001;131(10):2670-2676.

Thomas H, Ciliska D, Wilson-Abra J. Effectiveness of Physical Activity Enhancement and Obesity Prevention Programs in Children and Youth. Final Report to Health Canada 6795-15-2002/5440007. May, 2004.

Toronto Public Health. Toronto Results of the Ontario Nutrition and Cancer Prevention Survey. August 11, 2004. (Staff report to Board of Health September 2, 2004.)

Tremblay MS, Willms JD. Secular trends in the body mass index of Canadian Children. *Canadian Medical Association Journal*. 2000;163(11):1429-1433. Correction in: *Canadian Medical Association Journal*. 2001;164(7):970.

US Food and Drug Administration Center for Safety and Applied Nutrition. Calories Count Report of the Working Group on Obesity. March 12, 2004.

Wardle J, Guthrie C, Sanderson S, et al. Food and activity preferences in children of lean and obese parents. *International Journal of Obesity*. 2001;25(7):971-977.

Whitaker RC, Wright JA, Pepe MS, et al. Predicting obesity in young adulthood from childhood and parental obesity. *New England Journal of Medicine*. 1997;337(13):869-873.

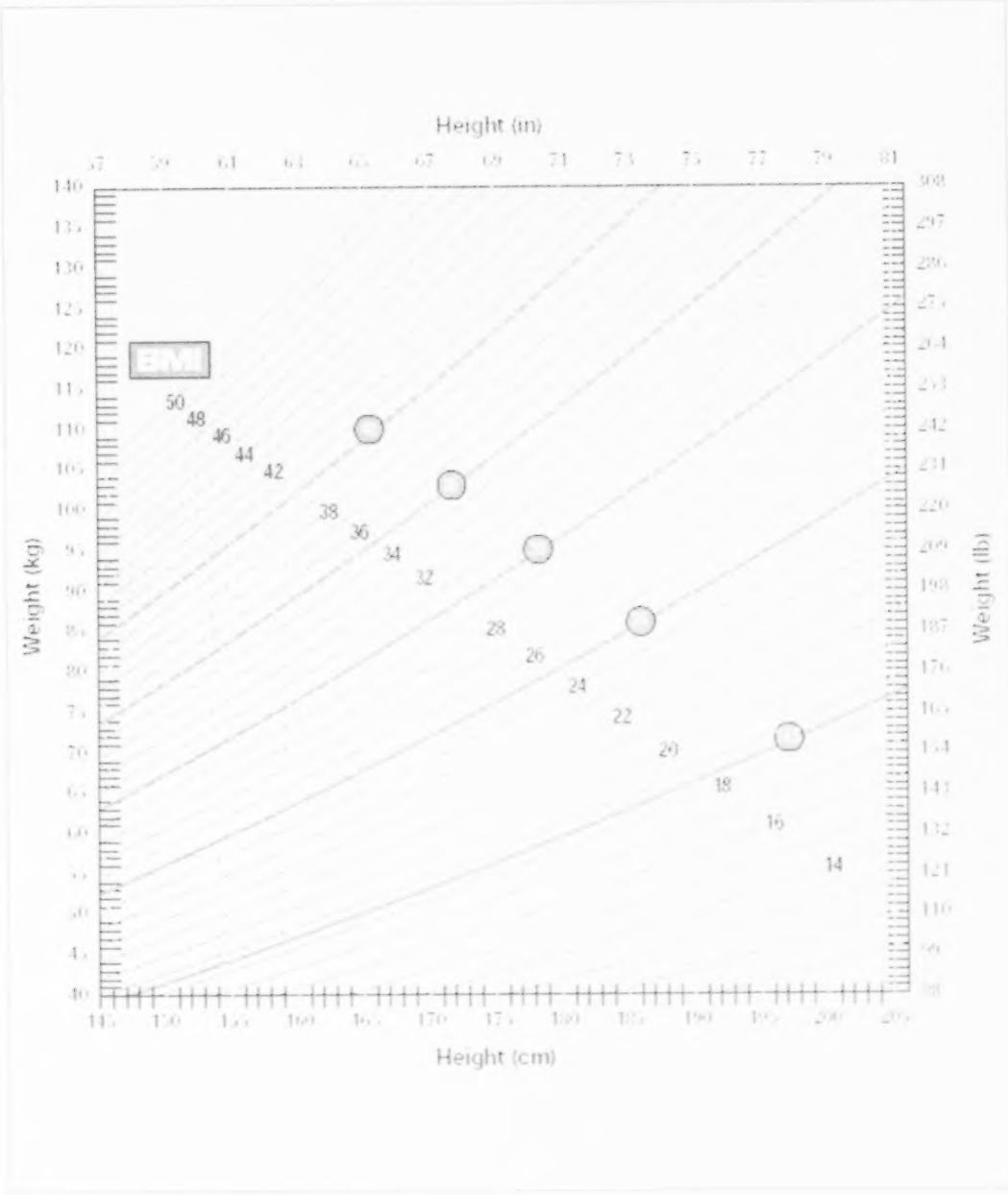
Young L, Nestle M. The contribution of expanding portion sizes to the US obesity epidemic. *American Journal of Public Health*. 2002;92(2):246-249.

57th World Health Assembly. Global Strategy on Diet, Physical Activity and Health. 22 May, 2004.

World Health Organization. World Health Report 2002. Available at http://www.who.int/whr/2002/en/

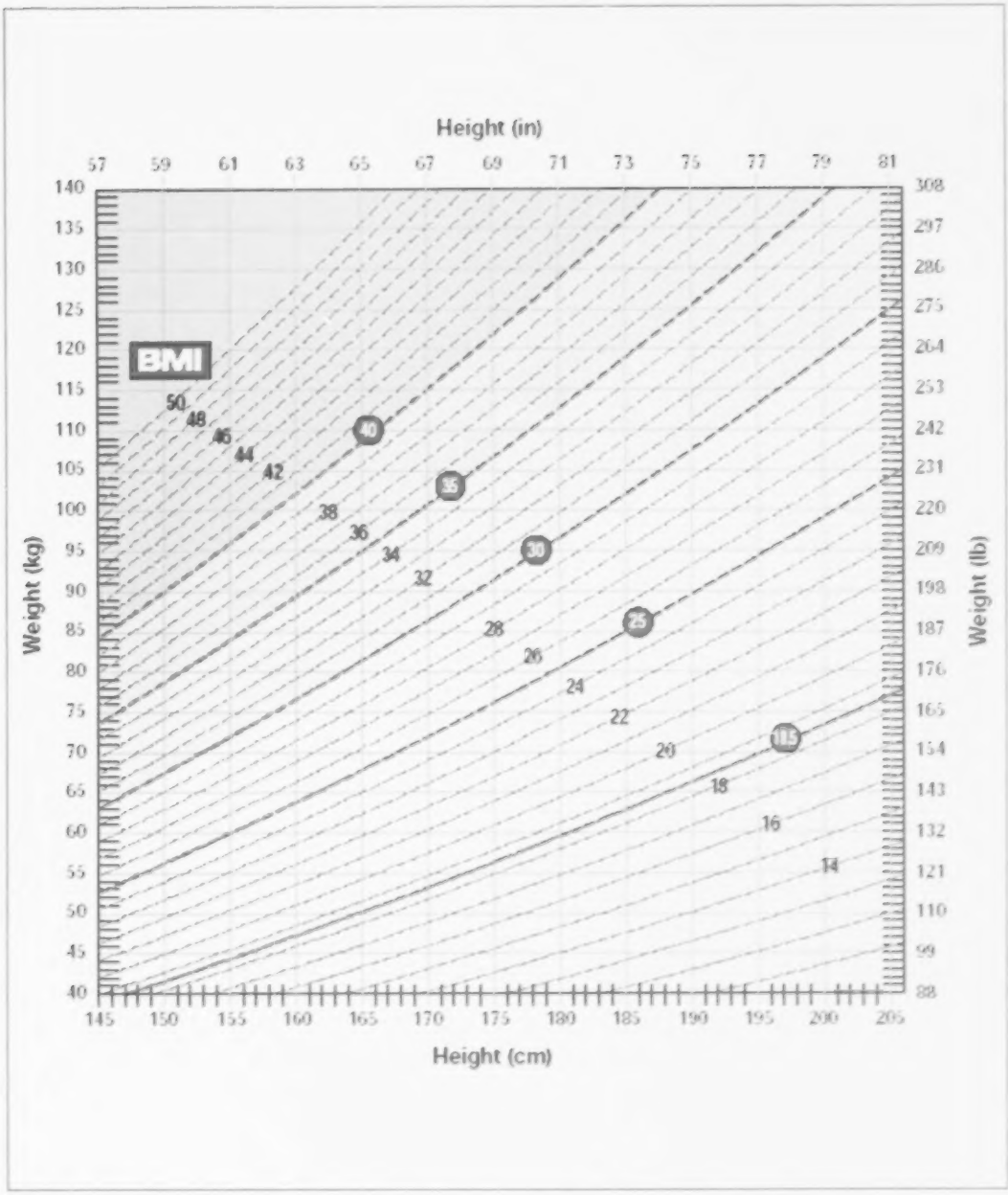
Appendices

Appendix A: BMI Chart

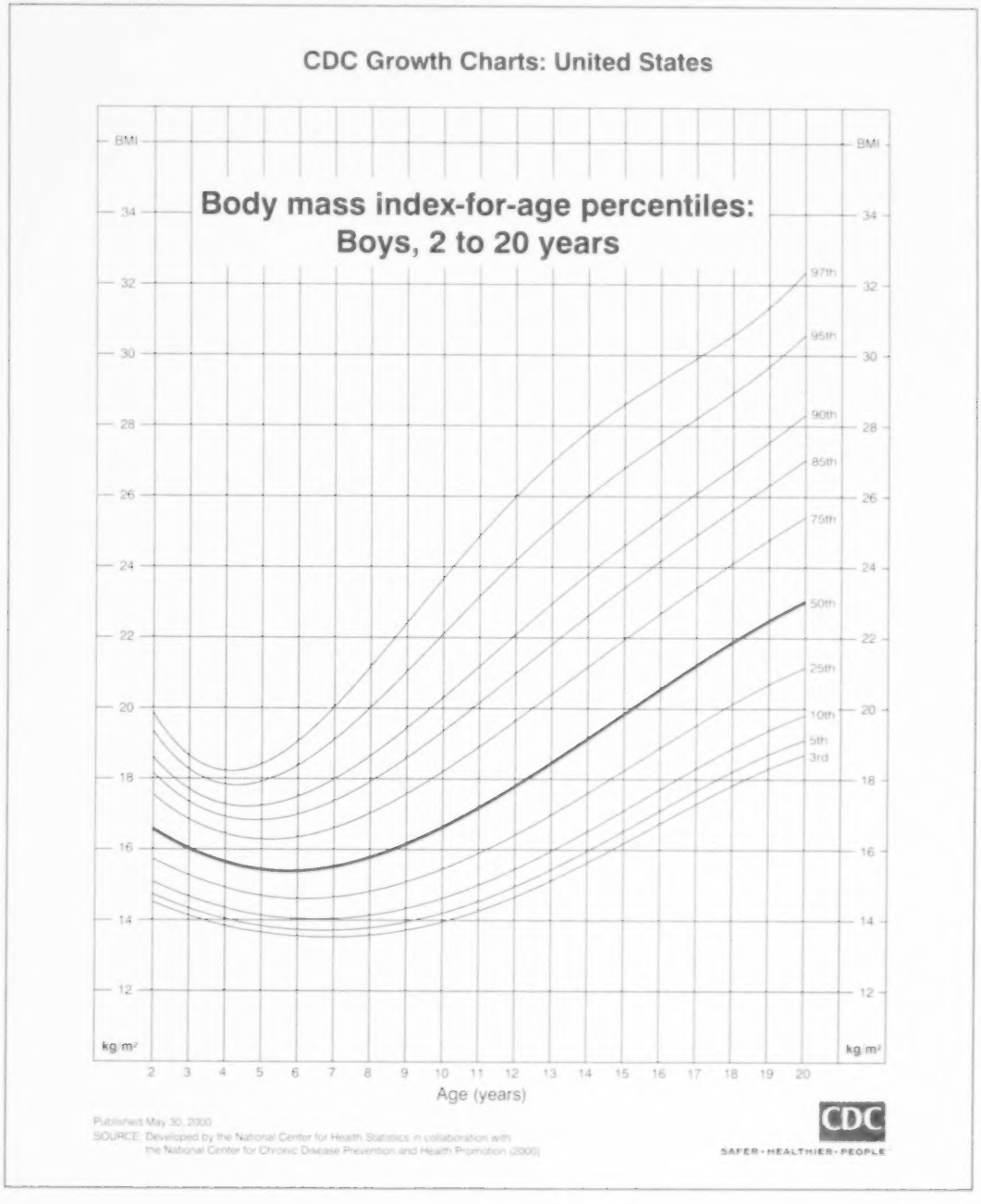


Appendices

Appendix A: BMI Chart

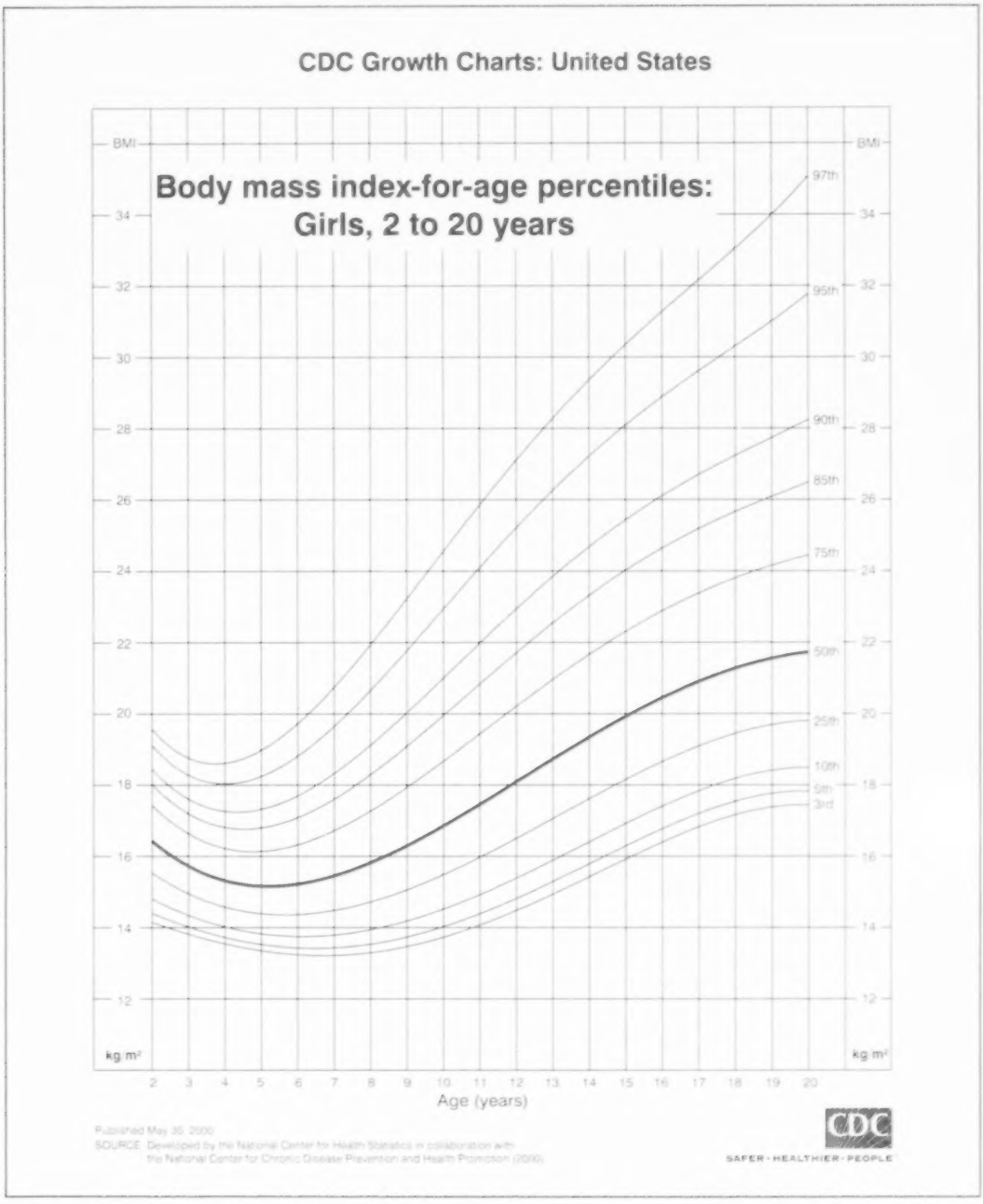


Appendix B: CDC Growth Charts for Children – Boys



Appendices (continued)

Appendix B: CDC Growth Charts for Children – Girls



Appendices (continued)

Appendix C: Methods for Calculating Body Weight Categories for Children Comparison of two methods for calculating child overweight and obesity

Characteristic	Method	
	Centers for Disease Control and Prevention, 2000	Cole et al., 2000[1]
Reference Populations	USA	Brazil, Great Britain, Hong Kong, Netherlands, Singapore, USA. Canadian data were excluded due to small sample size.
Main outcome	Body Mass Index (weight/ height^2) for age	Body Mass Index (weight/ height^2) for age
Method	Cut offs are percentiles, based on the distribution in the reference population. The expectation is that any changes since that time would be reflected as increases in the percent of children categorized as "at risk of overweight" and "overweight".	Centile curves were drawn such that at age 18 years they passed through the cutpoint of 25 and 30 kg /m^2 (widely used cut off points for adult overweight and obesity). The resulting curves were averaged to provide age and sex specific cut off points from 2-18 years.
Categories	Overweight: BMI-for-age ≥ 95th centile Risk of overweight: 85th centile ≤ BMI-for-age ≤ 95th centile Underweight: BMI-for-age <5th centile	Obese: BMI ≥ 30 at age 18 Overweight: BMI 25 – 29.9 at age 18 Underweight: (not included) Centiles corresponding to these cut-points were drawn through ages 2-18.
Comparison of Methods	Young children: Yields higher estimates of "overweight" and "at risk of overweight" Older children: Yields lower estimates of "overweight" and "at risk of overweight" (by inference from Flegal et al, 2001)[8]	Young children: Yields lower estimates of "obesity" and "overweight" Older children: Yields higher estimates of "obesity" and "overweight" (Flegal et al, 2001)
Interpretation	BMI-for-age is a predictor of health risks and future risk of being overweight (Whitaker et al, 1997)[10]	Cut points at age 18 correspond to adult cut points with recognized morbidity. (NIH, 1998)[9] "The corresponding centile cut off points are associated with morbidity in children." Freedman et al, 1999)[5]

Chart continues on next page.

Appendix C: Methods for Calculating Body Weight Categories for Children Comparison of two methods for calculating child overweight and obesity

Characteristic	Method	
	Centers for Disease Control and Prevention, 2000	Cole et al., 2000[7]
Reference Populations	USA	Brazil, Great Britain, Hong Kong, Netherlands, Singapore, USA. Canadian data were excluded due to small sample size.
Main outcome	Body Mass Index (weight/ height²) for age	Body Mass Index (weight/ height²) for age
Method	Cut-offs are percentiles, based on the distribution in the reference population. The expectation is that any changes since that time would be reflected as increases in the percent of children categorized as "at risk of overweight" and "overweight"	Centile curves were drawn such that at age 18 years they passed through the cut-point of 25 and 30 kg/m² (widely used cut-off points for adult overweight and obesity). The resulting curves were averaged to provide age and sex specific cut-off points from 2-18 years.
Categories	Overweight: BMI-for-age ≥ 95th centile Risk of overweight: 85th centile ≤ BMI-for-age < 95th centile Underweight: BMI-for-age < 5th centile	Obese: BMI ≥ 30 at age 18 Overweight: BMI 25 - 29.9 at age 18 Underweight: (not included) Centiles corresponding to these cut-points were drawn through ages 2-18.
Comparison of Methods	Young children: Yields higher estimates of "overweight" and "at risk of overweight" Older children: Yields lower estimates of "overweight" and "at risk of overweight" (In reference from Flegal et al. 2001)[5]	Young children: Yields lower estimates of "obesity" and "overweight" Older children: Yields higher estimates of "obesity" and "overweight" (Flegal et al. 2001)
Interpretation	BMI-for-age is a predictor of health risks and future risk of being overweight (Whitaker et al. 1997)[6]	Cut-points at age 18 correspond to adult cut-points with recognized morbidity (NIH 1998).[8] "The corresponding centile cut-off points are associated with morbidity in children." (Freedman et al. 1999)

Chart continues on next page.

Appendices (continued)

Appendix C: Methods for Calculating Body Weight Categories for Children
Comparison of two methods for calculating child overweight and obesity

Recommendation	"The 2000 CDC charts meet both clinical and research needs." "Until internationally diverse growth charts are available and have been reviewed for use in Canada, the growth charts from the American Centers for Disease Control and Prevention (CDC) are recommended as the charts of choice for use by Canadian family physicians, pediatricians, dietitians, nurses, and other health professionals".[vi] "There is insufficient evidence in quantity or quality to make a recommendation; however, other factors may influence decision-making. This recommendation is made based on 'expert opinion'." (Collaborative statement, 2004)	"They may be considered more internationally acceptable because they were based on pooled reference data from six countries geographically spread out around the world" (Collaborative statement, 2004) "For comparing prevalence data for BMI of Canadian populations against other populations, use of the international BMI charts is recommended for their geographical diversity." (Cole as cited by Collaborative statement, 2004)

[i] Cole TJ, Bellizzi MC, Flegal KM, et al. Establishing a standard definition for child overweight and obesity worldwide: international survey. *British Medical Journal*. 2000;320(7244):1240-1243.

[ii] Flegal KM, Ogden CL, Wei R, et al. Prevalence of overweight in US children: comparison of US growth charts from Centers for Disease Control and Prevention with other reference values for body mass index. *American Journal of Clinical Nutrition*. 2001;73(6):1086-1093.

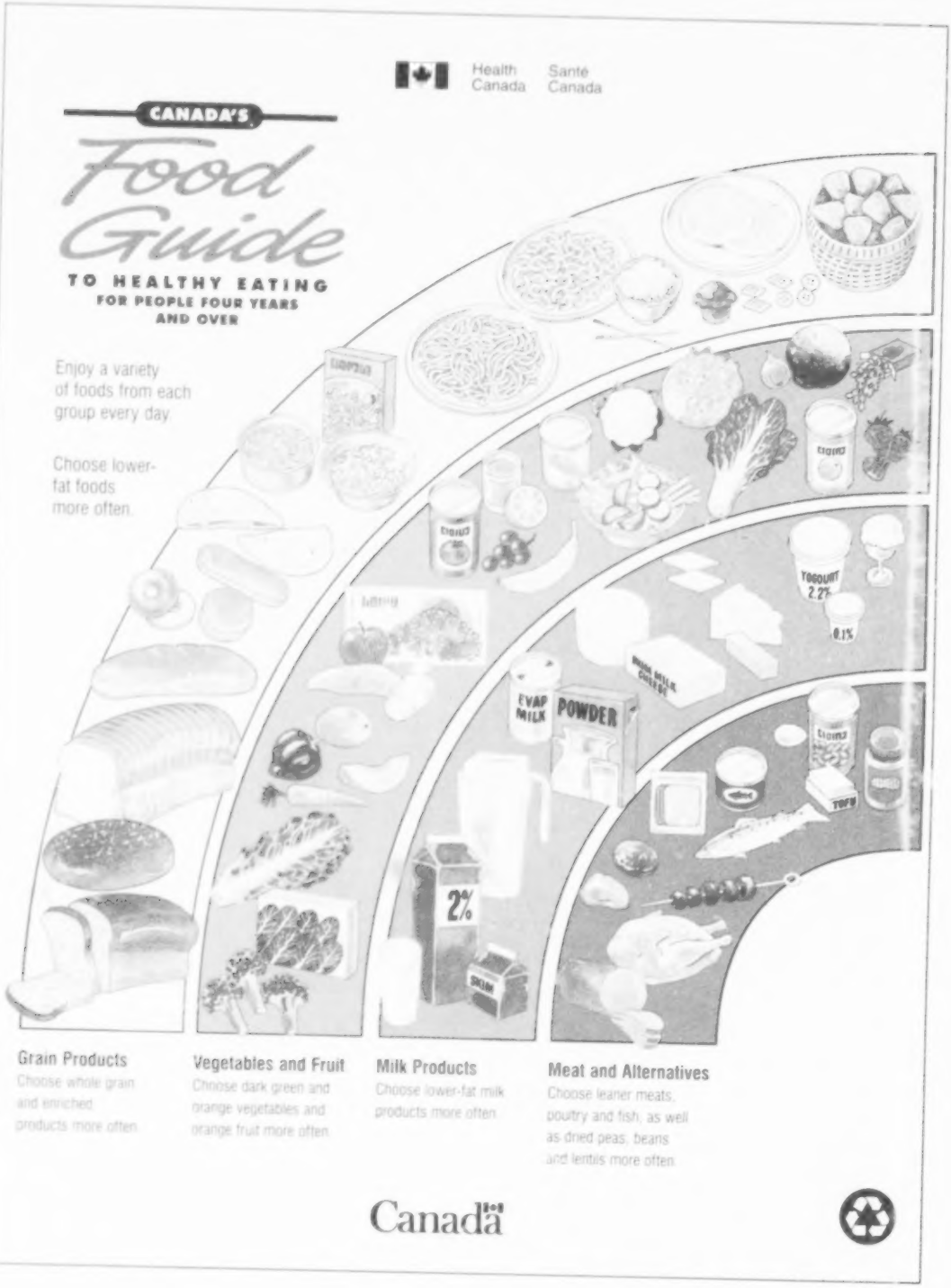
[iii] Whitaker RC, Wright JA, Pepe MS, et al. Predicting obesity in young adulthood from childhood and parental obesity. *New England Journal of Medicine*. 1997;337(13):869-873.

[iv] National Institutes of Health, National Heart, Lung, and Blood Institute. Clinical guidelines on the identification, evaluation, and treatment of overweight and obesity in adults; the evidence report. *Obesity Research*. 1998;6(suppl2):51-209S.

[v] Freedman DS, Dietz WH, Srinivasan SR, et al. The relation of overweight to cardiovascular risk factors among children and adolescents: the Bogalusa heart study. *Pediatrics*. 1999;103(6 Pt 1): 1175-1182.

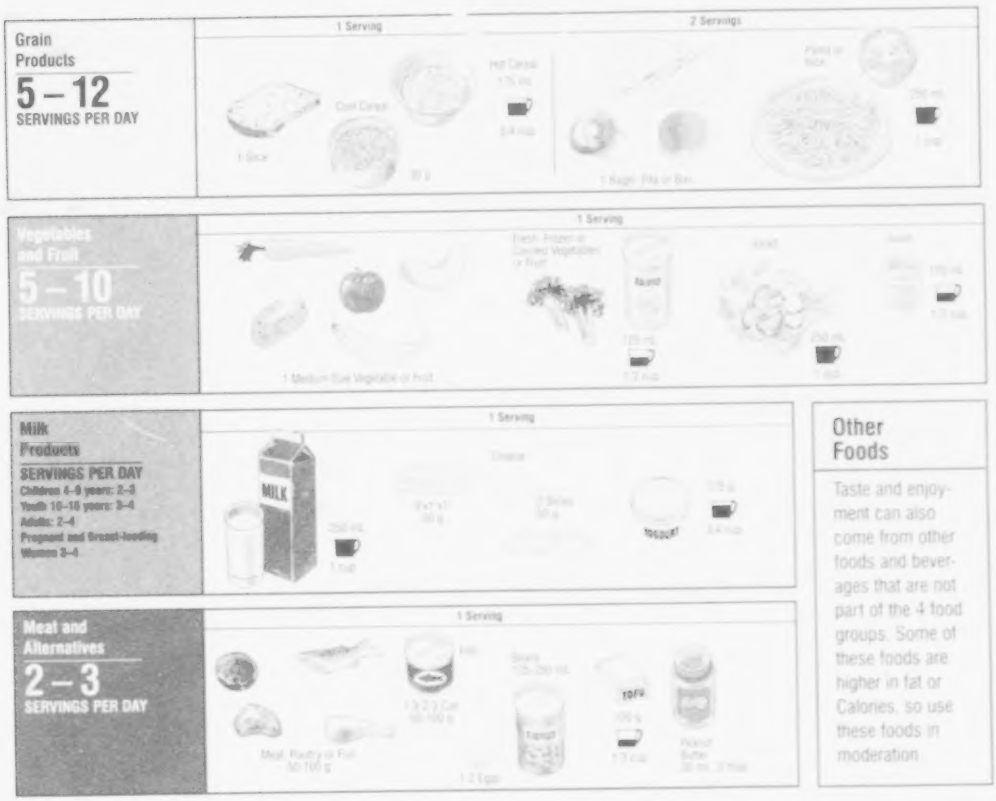
[vi] A Collaborative Statement from the Dietitians of Canada, Canadian Paediatric Society, the College of Family Physicians of Canada and Community Health Nurses of Canada. The use of growth charts for assessing and monitoring growth in Canadian infants and children. *Canadian Journal of Dietetic Practice and Research*. 2004;65(1):22-32.

Appendix D: Canada's Food Guide to Healthy Eating



Appendices (continued)

Appendix D: Canada's Food Guide to Healthy Eating (continued)



Different People Need Different Amounts of Food

The amount of food you need every day from the 4 food groups and other foods depends on your age, body size, activity level, whether you are male or female and if you are pregnant or breast-feeding. That's why the Food Guide gives a lower and higher number of servings for each food group. For example, young children can choose the lower number of servings, while male teenagers can go to the higher number. Most other people can choose servings somewhere in between.

Consult *Canada's Physical Activity Guide to Healthy Active Living* to help you build physical activity into your daily life.

Enjoy eating well, being active and feeling good about yourself. That's VITALITY

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Cat. No. H39-252-1992E ISBN 0-662-13648-1
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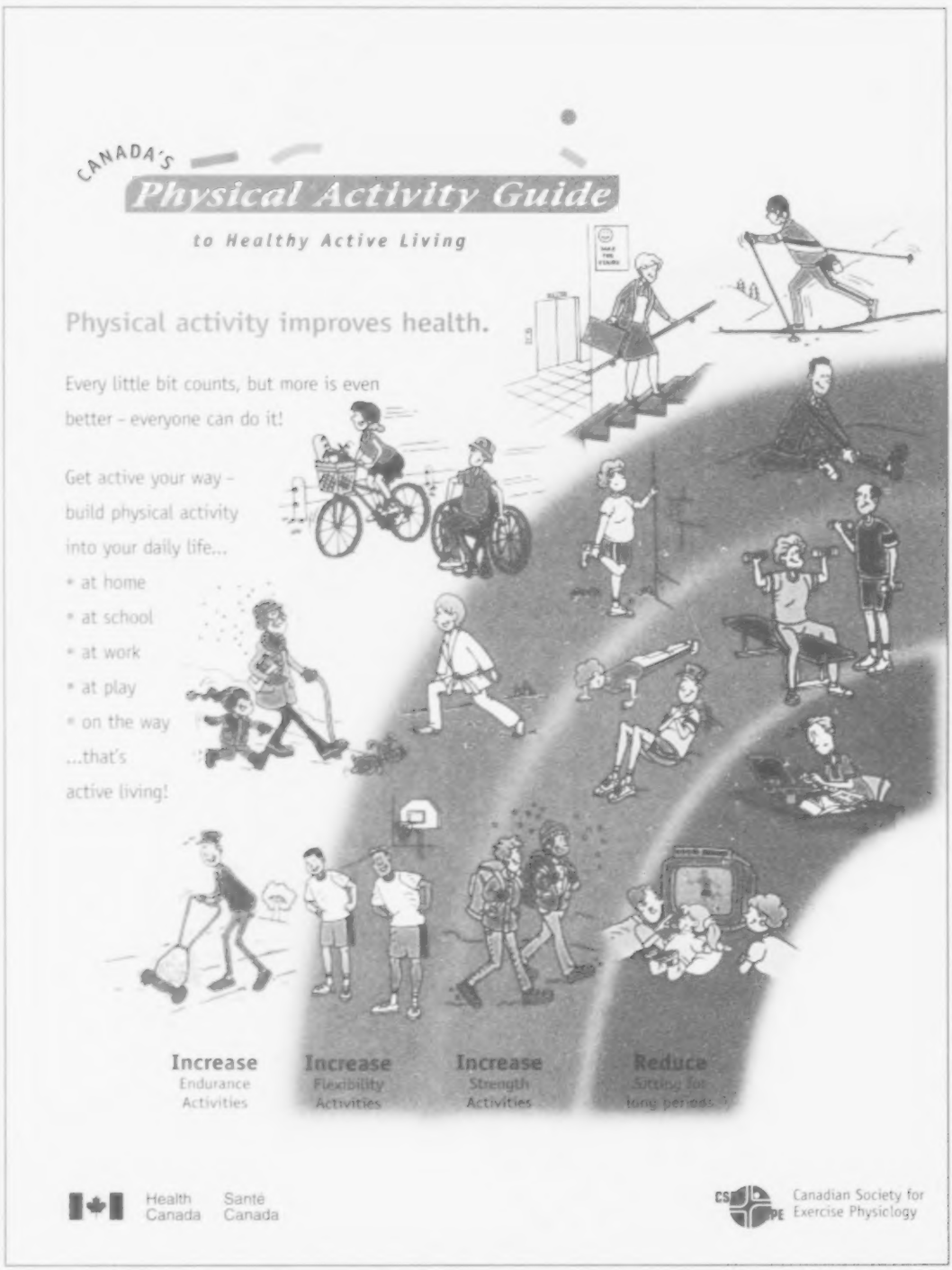
Appendix E: Canada's Physical Activity Guide to Healthy Active Living


CANADA'S
Physical Activity Guide
to Healthy Active Living
Physical activity improves health.
Every little bit counts, but more is even better – everyone can do it!
Get active your way – build physical activity into your daily life...
• at home
• at school
• at work
• at play
• on the way
...that's active living!
Increase Endurance Activities
Increase Flexibility Activities
Increase Strength Activities
Reduce Sitting for long periods
Health Canada
Santé Canada
Canadian Society for Exercise Physiology

Different People Need Different Amounts of Food

Appendix E: Canada's Physical Activity Guide to Healthy Active Living

Appendices (continued)

Appendix E: Canada's Physical Activity Guide to Healthy Active Living (continued)

Choose a variety of activities from these three groups:

Endurance

4-7 days a week
Continuous activities for your heart, lungs and circulatory system.

Flexibility

4-7 days a week
Gentle reaching, bending and stretching activities to keep your muscles relaxed and joints mobile.

Strength

2-4 days a week
Activities against resistance to strengthen muscles and bones and improve posture.

Starting slowly is very safe for most people. Not sure? Consult your health professional.

For a copy of the *Guide Handbook* and more information: **1-888-334-9769**, or **www.paguide.com**

Eating well is also important. Follow *Canada's Food Guide to Healthy Eating* to make wise food choices.

Get Active Your Way, Every Day – For Life!

Scientists say accumulate 60 minutes of physical activity every day to stay healthy or improve your health. As you progress to moderate activities you can cut down to 30 minutes, 4 days a week. Add-up your activities in periods of at least 10 minutes each. Start slowly... and build up.

Time needed depends on effort

Very Light Effort	Light Effort *60 minutes*	Moderate Effort *30-60 minutes*	Vigorous Effort *20-30 minutes*	Maximum Effort
• Strolling	• Light walking	• Brisk walking	• Aerobics	• Sprinting
• Dusting	• Volleyball	• Biking	• Jogging	• Racing
	• Easy gardening	• Raking leaves	• Hockey	
	• Stretching	• Swimming	• Basketball	
		• Dancing	• Fast swimming	
		• Water aerobics	• Fast dancing	

Range needed to stay healthy

You Can Do It – Getting started is easier than you think

Physical activity doesn't have to be very hard. Build physical activities into your daily routine.

- Walk whenever you can – get off the bus early, use the stairs instead of the elevator.
- Reduce inactivity for long periods, like watching TV.
- Get up from the couch and stretch and bend for a few minutes every hour.
- Play actively with your kids.
- Choose to walk, wheel or cycle for short trips.
- Start with a 10 minute walk – gradually increase the time.
- Find out about walking and cycling paths nearby and use them.
- Observe a physical activity class to see if you want to try it.
- Try one class to start – you don't have to make a long-term commitment.
- Do the activities you are doing now, more often.

Benefits of regular activity:	Health risks of inactivity:
• better health	• premature death
• improved fitness	• heart disease
• better posture and balance	• obesity
• better self-esteem	• high blood pressure
• weight control	• adult-onset diabetes
• stronger muscles and bones	• osteoporosis
• feeling more energetic	• stroke
• relaxation and reduced stress	• depression
• continued independent living in later life	• colon cancer

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